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# NAVAL POSTGRADUATE SCHOOL

## Monterey, California


DESIGN OF OPERATIONAL CAREER LADDERS

Richard S. Elster, Robert R. Read,
William H. Githens, Gerald L. Musgrave,
and John W. Creighton

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Task inventories were administered to Civil Service personnel in San Diego, CA. and Washington, D.C. Statistical analyses were conducted of the task inventory data in order to describe, cluster, and compare the various jobs. Preliminary attempts were made at defining career ladders and job families. Needs for further research are discussed.

TABLE OF CONTENTS

# INTRODUCTION

This report is one of six Naval Postgraduate School technical reports documenting and describing a research project titled, "Design of an Operational Personnel Development and Evaluation System," sponsored by the Naval Material Command. The following is a listing of these six reports:

1. NPS-55Gh73061
   DESIGN OF AN OPERATIONAL PERSONNEL DEVELOPMENT AND EVALUATION SYSTEM
   by: William H. Githens, Richard S. Elster, Gerald L. Musgrave, and John W. Creighton.

2. NPS-55Ea73061
   DESIGN OF OPERATIONAL CAREER LADDERS
   by: Richard S. Elster, Robert R. Read, William H. Githens, Gerald L. Musgrave, and John W. Creighton.

3. NPS-55Gh73062
   DESIGN OF AN OPERATIONAL MANAGEMENT DEVELOPMENT MANUAL
   by: William H. Githens, Richard S. Elster, Gerald L. Musgrave, and John W. Creighton.

4. NPS-55Gh73063
   DESIGN OF AN OPERATIONAL RATING MANUAL
   by: William H. Githens, Richard S. Elster, Gerald L. Musgrave, and John W. Creighton.

5. NPS-Mg73061
   DESIGN OF AN OPERATIONAL MANAGEMENT BY OBJECTIVES MANUAL
   by: Gerald L. Musgrave, Richard S. Elster, John W. Creighton, and William H. Githens.

6. NPS-55Rr73061
   STATISTICAL ANALYSIS OF PERSONNEL DATA USING FACTOR SCORING, CLUSTER ANALYSIS, AND MULTI-DIMENSIONAL SCALING
   by: Robert R. Read, Richard S. Elster, Gerald L. Musgrave, John W. Creighton, and William H. Githens.

An executive summary of the entire project follows, and any additional information about the project can be obtained from the Project's Principal Investigator, Dr. Gerald L. Musgrave, Department of Operations Research and Administrative Sciences, Naval Postgraduate School, Monterey, California 93940.

# EXECUTIVE SUMMARY
# OF
# THE PERSONNEL DEVELOPMENT AND EVALUATION SYSTEM

## INTRODUCTION

The purpose of this research project was to develop and implement a management system to more effectively utilize civilian professionals. Two "test bed" activities were selected--Naval Supply Center and Naval Regional Finance Center, both in San Diego, California. The project has four parts:

1. Establishing a Group Appraisal System.
2. Developing a Goal Setting System.
3. Constructing Performance Rating Scales.
4. Developing Career Ladders.

## GROUP APPRAISAL

The management development program involved civilian professionals at the two commands in group performance appraisal sessions. A professional's work performance was usually appraised by his supervisor and by the supervisor's superior. This group would meet with a member of the research team. The appraisals conducted by these groups were focused on, and limited to, intra-appraisee considerations. That is, the appraisal committee considered the individual in terms of his greatest strengths and his least strong work performances, but did not compare the appraisee with other individuals. Recommendations for the appraisee, for the appraisee's supervisor, and for the organization were then made so that this appraisee (a "human asset") could grow in worth to himself and to the organization.

A summary of the appraisal committee's thinking was then written by the research team member who had attended the committee's meeting and given to the appraisee's supervisor for his review. The supervisor then discussed the appraisal with the appraisee, stating that this is "how others see and interpret you," and that "here are our thoughts on how you might further develop and utilize your talents."

The responses to the appraisal program were varied. A number of appraisees stated informally that they felt their appraisal session with their supervisor had been one of the most meaningful experiences they had while in the Civil Service. Many supervisors, however, experienced their first exposure to a face-to-face dialogue with one of their subordinates and found the feedback session to be somewhat traumatic. The development of supervisory skills in these feedback behaviors appears to be a crucial requirement if face-to-face dialogues between supervisors and subordinates are to become common and meaningful.

## GOAL SETTING

Another part of the project was to establish a framework to foster and facilitate a "result oriented" management system. Our experience was that effective goals could be established and that while it took time to develop goals, the act of setting goals was beneficial to the organization.

Goal setting was new to managers and they were resistant to formalizing goals. Some of the resistance seemed to be attributable to unfamiliarity with the concept of producing results, as compared to being engaged in activities. Another resistive force seemed to be the fear that goal setting would be used for punitive managerial actions.

We believe that after more experience is gained in goal setting and when employees' fears of consequential management action are found to be unwarranted, a greater acceptance of the program will result.

Our research at the Naval Postgraduate School and the San Diego Centers leads to the development of a new Goals and Controls System. This system includes a Work Performance Folder and a Goal Setting Manual that is to be used in conjunction with the folder. The system can be used to formulate goals, monitor and control performance, and to appraise work performance at the end of the year.

## PERFORMANCE RATING SCALES

Section IV of this report presents the rating scales which were developed for professional occupations in Supply and Finance.

## ANCILLARY STUDIES

The project report includes a number of sections which are indirectly related to the central issues of performance appraisal, goal setting, scale construction and career ladders. These related sections include analyses of questionnaires administered to individuals at the Centers, bibliographic resource materials, and a number of related ancillary studies. These studies are related to human asset accounting, goal setting, auditing, and statistical analyses of organizational climate and attitudinal data from the Centers.

## BACKGROUND

During Fiscal Year 1972, the Navy Material Command financed investigations by Naval Postgraduate School (NPS) faculty as part of their exploratory research directed at developing methods and means for improving organizational effectiveness. In the course of various dialogues concerning NAVMAT operations, topics related to the age and replacement of professional civilian personnel were discussed. These discussions then turned to the issues of performance evaluation and management by objectives. The Office of Civilian Manpower Management (OCMM) became interested in these problems, and the NPS was requested by NAVMAT and OCMM personnel to submit a proposal for implementing some relevant managerial programs during FY 73. NPS responded with the proposal included as Appendix 1.

The proposal involved the following main objectives:

1. Developing for each civilian professional specific ways in which he can improve his knowledge, skills, attitudes, or behaviors to make him a more valuable human asset for the Navy.

2. Develop for each civilian professional a list of specific ways in which management can better utilize his talent.

3. Advise each civilian professional of what his boss wants him to accomplish during the coming year, and the evidence that will be used to judge such accomplishment.

4. Generate for each professional position the best performance rating scales allowed by current technology.

5. Generate "career ladders" for civilian professional jobs that relate field jobs to jobs in Washington, D.C. These "ladders" were to be based on the similarities and differences between and among jobs.

The on-site locations for this "demonstration" project were the Naval Supply Center, San Diego, and the Navy Regional Finance Center, San Diego. The main administrative offices for both organizations are located in the same building and both organizations are served by the same personnel department. Tables of organization for these two organizations, which show only the professional civilian billets and the hierarchy above them, are presented in Appendix 2. These two organizations were chosen because: (1) they are located in the same building, (2) this choice would allow one of the principal investigators to be on-site full-time, (3) they were within reasonable commuting distance from the Naval Postgraduate School in Monterey, and (4) both were considered by NAVMAT and NAVCOMPT personnel to be relatively healthy and efficient organizations.

A combination of "Management by Objectives" and "Group Appraisal" was used in accomplishing the first three of the five above objectives. Working from the higher toward the lower positions in the organizational hierarchy,

each supervisor called a committee meeting with his supervisor and several other employees who would have been in a position to observe the work performance of the appraisee. Following a brief discussion of the "strongest" and "least strong" aspects (intra-individual) of the appraisee's performance, the committee developed a list of recommendations in keeping with the first two of the aforementioned objectives. (Each of these discussions focused only on intra-individual differences.) Following this group meeting, the supervisor conducted a counseling session with the appraisee during which the opinions and recommendations of the committee were discussed. With this as a background, the supervisor and appraisee then worked out a list of specific goals for personal development to be accomplished during the coming year. In addition, based on the requirements and expectations of work accomplishment for the coming year as worked out by the supervisor and his boss, the supervisor and the appraisee (subordinate) worked out a list of goals for organizational accomplishment (objective #3) applying to the appraisee. Thirty of the 85 professional employees at NSC and all 25 of the professional employees at NRFC were covered by this program. Part II of this report deals with the developmental activities involved in objectives 1 and 2, while Part III of this report is concerned with the MBO portion (objective #3) of the project.

Generation of the best performance rating scales for each professional job (objective #4) involved the following scale construction steps:

1. A group of employees (3 to 6) familiar with the job listed the most relevant aspects of performance for the specific job.

2. The group then generated "specific" behavioral examples they had observed that demonstrated high and low performance on each performance aspect.

3. At a later time, these behavioral incidents were presented to the individuals in the group, who assigned them to the rating scale (aspect) and rating scale level (low to high on a 5-point scale) that they thought appropriate.

4. Incidents that were not by consensus assigned to the same location (both rating scale and level) were eliminated.

This procedure yielded rating scales that are relevant to the job being rated and that are "anchored" by specific behavioral incidents representing on the scales the various levels of job performance.

Rating scales were constructed for 6 of the 27 civilian professional jobs at NSC and for 3 of the 7 jobs at NRFC. General "supervisory" scales were constructed covering 11 of the 21 remaining jobs at NSC and all 4 of the remaining professional jobs at NRFC. Part IV of this report and Technical Report NPS55Gh73063 present the scale construction work conducted during the research project.

In support of objective #5, a task inventory asking employees to list the degree to which they were involved in various activities was administered

to 85 civilian professionals at NSC and 26 civilian professionals at NRFC. The same inventory was completed by civilian professionals in NAVSUP and NAVCOMPT in Washington, D.C. The data from the responses to this inventory formed the basis for the investigation of career paths, which was objective #5 of this project. The research done on career paths is described in Technical Report NPS55Ea73062.

Another technical report in this series, NPS55Rr73061, contains ancillary studies conducted during the term of this project. These studies included one using multidimensional scaling in examining how supervisors differentiate among their subordinates, and another effort which involved developing a comprehensive bibliography of the Management by Objectives literature.

## CAREER LADDERS

### Background and Introduction

The proposal for the research effort by the Naval Postgraduate School stated, in part, that critical incident and task analysis methods would be used to describe positions in San Diego and Washington, D.C. Additionally, the proposal promised that statistical analysis techniques would be used to structure empirical job groupings and job hierarchies within the various occupational areas studied. This section of the final report will discuss the purposes and the results of the analyses conducted of selected jobs in Supply and Finance. Two types of analyses will be discussed here: canonical correlation analysis and hierarchical classification (cluster) analysis.

### Purpose of the Canonical Correlation Analysis

Almost any job is extraordinarily difficult to describe in a precise but exhaustive way, and the analysis or description of managerial level jobs is particularly vexing. It is important, however, to define the behavioral requirements of a managerial job in terms of a relatively small set of variables, as long as the set is an exhaustive one. One would also like to be able to describe all managerial jobs in terms of a common set of behavioral variables, just as individuals can be described and compared by referring to variables such as age, height, and intelligence. Once developed, the set of behaviorally oriented managerial job dimensions can provide a springboard for many personnel administration programs. Predictions of managerial performance should, for instance, be improved because the job could be "profiled" on the dimensions, allowing one to know in advance what kinds of behaviors and performances are emphasized in that position. Career progression paths (both inter- and intra-organizational) and associated training/development needs should also be more visible when the managerial jobs are all described in terms of a common set of behavioral dimensions.

The probability of an effective manager remaining an effective manager should be greater when he is transferred between jobs which have similar profiles on the dimensions than when he is transferred between jobs which have dissimilar profiles. A transfer between jobs meaning a move "upward" on one or more of the behavioral requirements dimensions should reveal a great deal about what aspects of a manager's job performance should be evaluated. The dimensions on which a managerial job has a high score are, very probably, also some of the dimensions on which the effectiveness of a manager's job behavior should be evaluated. Likewise, jobs falling near to each other on all of the behavioral dimensions might be expected to require the same set of performance evaluation measures.

### Approach

In order to develop job groupings and to determine the behavioral dimensions that can be used to describe managerial jobs, one begins by collecting information concerning the tasks performed by managers in their jobs. Statistical analysis can then be conducted on the task data that have been collected. The construction of the task inventory, the details of the analyses conducted

on the data gathered by using the inventory and the results of these analyses will be discussed in the succeeding paragraphs.

Task Inventory Development

In 1959, John Hemphill of the Educational Testing Service developed a task inventory for executive-level positions. From the responses of industrial executives to this task inventory, Hemphill then developed scoring keys and norms for scoring industrial managers on ten dimensions. Task statements in Hemphill's original inventory served as the starting point for the Monterey project group in developing a task inventory to be used by Civil Service managers in Supply and Finance for describing their positions. Members of the Monterey research team reviewed Hemphill's task inventory in order to determine which task statements should be altered and which should be eliminated. Many of the original task statements were rewritten so they would be more descriptive of tasks performed by Civil Service managers. Task statements were eliminated if they would apply to managers working in the private sector of the economy but not to managers working in governmental positions. After altering and deleting task inventory items, attention turned to adding task statements describing job behaviors thought to be required of managers in the Civil Service.

Most of the additional task inventory items were developed by observations of Civil Service managers at work, and via discussions with managers at the Naval Supply Center and Navy Regional Finance Center at San Diego. Other task items were included in the inventory because of the research team's belief that they were performed by at least some managers in positions at the Supply or Finance headquarters in the Washington, D.C. area.

The revised task inventory and associated instructions were then tried out using a small sample of managers at the NSC and the NRFC in San Diego. This administration revealed that no changes appeared to be required in the set of task statements, but that the instructions for completing the inventory needed clarification. The modifications made in the instructions were directed at allaying the puzzlement some respondents felt at the fact that some or many of the task statements were not descriptive of their jobs. As the task inventory was being designed for coverage of a very broad range of jobs, the inapplicability of some task statements to any particular job was, of course, to be expected. The instructions for the inventory were changed so the respondent would know that the inapplicability of some, or even many, tasks should not be a worrisome outcome. Additionally, an extra section was added to the inventory which urged the respondent to add additional tasks characteristic of his job.

The tryout of the task inventory revealed that the modal time required for completion was 30 minutes. This time was considered acceptable by the research team. A copy of the final version of the task inventory is included as Appendix 1 of this report.

Data Analysis Goals

Before giving an overview of the data analysis procedures used with the task inventory data, it is appropriate to review briefly the outcomes desired from these analyses. First, it is desired that the analysis yield clusters

of positions identified as being similar to one another with regard to their behavioral requirements. The positions in any particular cluster may be from just one command; e.g., San Diego NSC, or from two locations; San Diego and Washington, D.C.

Second, the analysis should provide dimensions by which the positions can be described and compared. These dimensions should be useable in describing the positions from all the commands surveyed; e.g., San Diego and Washington headquarters. Additionally, these dimensions should provide an understandable, but parsimonious, explanation of the observed differences among the jobs surveyed. The next section of the report discusses some of these goals in more detail.

## Canonical Correlation Analysis Results

By its very nature, this portion of the report is rather heavy reading. Additionally, the results of the canonical analyses were less useful than the researchers had hoped they would be. The reader who is not interested in canonical analysis *perse* is encouraged to skip this portion of the report and turn to the portion entitled "Cluster Analysis of Finance and Supply Positions".

Canonical correlation analysis is a method used to transform two or more sets of variables into common dimensions. Additionally, the procedure is carried out in such a way that for each of the common dimensions the correlation between the two sets of transformed variables is maximized.*

After a canonical correlation analysis has been conducted, attention logically turns to attempting to understand the dimensions or factors extracted from the data. To facilitate the interpretations of the dimensions determined in the analysis of the data from the NAVSUP jobs, the associations between individuals' responses to the task inventory and the scores of their jobs on each of the dimensions were examined. Bivariate linear correlation coefficients were the measures of relationship used to examine these associations.

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* An example from psychology may help in understanding canonical correlation. Responses by individuals to the items in a personality inventory can be compared to their responses to a vocational interest inventory in order to understand the relationships between the two inventories. A canonical correlation analysis would yield the dimensions or factors accounting for the relationships between the two inventories. The analysis would also show, for each dimension, the personality items associated with the interest items (and vice-versa, of course) and the importance of each of these items to the relationship. The results of such an analysis would go a long way toward clarifying the relationships between the two inventories and the associations between individuals' personalities and their vocational interests.

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## Canonical Correlation Analysis Results for NAVSUP

Computer program and data storage constraints limited the canonical correlation analysis to 60 NSC positions from San Diego and 40 Washington, D.C. NAVSUP positions. These 100 positions were chosen randomly from the total set of responses. Table V-1, below, shows the average response and the standard deviation of the responses for each of the 100 positions included in the analysis. As each individual completing a task inventory responded to 188 items, the average and standard deviation for each individual were computed using that person's 188 responses.

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TABLE V-1

Average Response and Standard Deviation of Response to the Task Inventory for 100 Supply Positions

| Position Number* | Average Response** | Standard Deviation of the Responses to the 188 Item Inventory from this Position |
|---|---|---|
| 1 | 3.44 | 3.41 |
| 2 | 0.50 | 1.28 |
| 3 | 1.84 | 2.29 |
| 6 | 0.40 | 1.20 |
| 9 | 1.61 | 2.20 |
| 10 | 3.09 | 3.23 |
| 11 | 2.71 | 2.47 |
| 13 | 3.24 | 3.13 |
| 14 | 0.56 | 1.60 |
| 15 | 0.78 | 1.65 |
| 16 | 0.67 | 1.46 |
| 18 | 0.44 | 1.29 |
| 19 | 0.64 | 1.42 |
| 20 | 1.66 | 2.57 |
| 21 | 0.79 | 1.80 |
| 22 | 1.02 | 2.15 |
| 24 | 3.91 | 2.68 |
| 25 | 0.73 | 1.61 |
| 26 | 3.89 | 2.81 |
| 27 | 1.53 | 2.48 |
| 28 | 1.88 | 2.13 |
| 30 | 0.43 | 1.03 |
| 31 | 3.07 | 3.19 |
| 33 | 3.28 | 2.91 |
| 34 | 3.82 | 2.82 |
| 35 | 3.78 | 2.65 |
| 36 | 0.73 | 1.89 |
| 37 | 0.02 | 0.14 |
| 38 | 3.54 | 2.81 |
| 39 | 1.10 | 1.91 |
| 40 | 0.63 | 1.62 |
| 41 | 0.27 | 0.75 |

| Position Number* | Average Response** | Standard Deviation of the Responses to the 188 Item Inventory from this Position |
|---|---|---|
| 44 | 1.36 | 2.53 |
| 46 | 1.70 | 2.69 |
| 50 | 1.51 | 2.09 |
| 52 | 0.74 | 1.83 |
| 54 | 2.11 | 2.96 |
| 56 | 0.59 | 1.52 |
| 57 | 1.05 | 2.22 |
| 59 | 1.23 | 1.53 |
| 60 | 0.80 | 1.98 |
| 62 | 1.13 | 2.22 |
| 64 | 2.79 | 2.52 |
| 65 | 3.57 | 3.03 |
| 66 | 2.91 | 2.26 |
| 67 | 0.93 | 2.22 |
| 68 | 0.91 | 2.13 |
| 69 | 5.01 | 2.50 |
| 70 | 1.86 | 2.30 |
| 71 | 3.08 | 2.19 |
| 72 | 2.22 | 2.18 |
| 76 | 1.68 | 2.56 |
| 78 | 3.14 | 2.99 |
| 79 | 0.66 | 1.65 |
| 80 | 0.93 | 1.91 |
| 81 | 2.84 | 2.68 |
| 84 | 3.45 | 3.15 |
| 86 | 0.36 | 1.07 |
| 87 | 3.16 | 2.72 |
| 89 | 1.02 | 2.05 |
| 150 | 3.32 | 2.86 |
| 151 | 2.12 | 2.19 |
| 152 | 3.43 | 3.05 |
| 153 | 2.50 | 2.59 |
| 154 | 1.28 | 1.89 |
| 155 | 2.11 | 2.65 |
| 156 | 3.76 | 2.80 |
| 157 | 1.55 | 1.75 |
| 158 | 2.65 | 2.11 |
| 159 | 1.44 | 2.04 |
| 160 | 3.03 | 2.58 |
| 161 | 3.11 | 2.36 |
| 163 | 2.62 | 2.22 |
| 164 | 3.00 | 2.78 |
| 165 | 3.07 | 1.83 |
| 166 | 2.78 | 2.29 |
| 167 | 1.91 | 2.06 |
| 168 | 2.48 | 2.52 |
| 169 | 1.12 | 1.61 |
| 170 | 1.68 | 2.30 |
| 174 | 2.57 | 3.09 |
| 175 | 1.76 | 2.11 |

| Position Number* | Average Response** | Standard Deviation of the Responses to the 188 Item Inventory from this Position |
|---|---|---|
| 176 | 3.02 | 2.63 |
| 177 | 1.69 | 2.13 |
| 178 | 2.18 | 1.72 |
| 179 | 3.78 | 2.97 |
| 180 | 2.67 | 2.61 |
| 181 | 1.98 | 2.68 |
| 182 | 1.85 | 2.26 |
| 186 | 3.72 | 2.37 |
| 188 | 1.69 | 2.17 |
| 189 | 2.20 | 2.11 |
| 190 | 1.39 | 1.99 |
| 191 | 1.68 | 1.81 |
| 192 | 2.84 | 2.95 |
| 193 | 2.44 | 2.44 |
| 194 | 1.37 | 1.59 |
| 204 | 2.71 | 3.11 |
| 205 | 2.77 | 2.41 |
| 206 | 2.67 | 2.66 |

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* See Appendix 2 for the job title-position number listings.

** The response scale for each of the task inventory statements ran from zero through seven.

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As can be seen from examining the means and standard deviations in Table V-1, there is a great amount of heterogeneity among the 100 positions studied with regard to how much the tasks in the survey are experienced by the position incumbents. The tasks in the survey, tasks which are oriented toward executives, apparently did not describe some positions (those having a low mean and a low standard deviation) particularly well, or, some positions are rather narrow in nature in that they involved performing a very few tasks of the type included in the survey.

The results of the canonical correlation analysis yielded 11 statistically different dimensions or factors. Table V-2 includes the statistics concerning the 11 statistically significant dimensions extracted from the data using the canonical correlation methodology.

TABLE V-2

Dimensions Determined from the Canonical Correlation Analysis and Tests for Their Significance (Data were from 100 Supply Positions)

| Dimensions (Factors) | Canonical Correlation | Chi-Square | Degrees of Freedom |
|---|---|---|---|
| 1 | .976 | 3818.63 | 2400 |
| 2 | .941 | 3401.83 | 2301 |
| 3 | .921 | 3102.51 | 2204 |
| 4 | .911 | 2843.63 | 2109 |
| 5 | .879 | 2599.83 | 2016 |
| 6 | .865 | 2395.57 | 1925 |
| 7 | .857 | 2205.85 | 1836 |
| 8 | .837 | 2023.47 | 1749 |
| 9 | .820 | 1857.36 | 1664 |
| 10 | .809 | 1703.83 | 1581 |
| 11 | .792 | 1557.31 | 1500 |

As the results in Table V-2 show, 11 dimensions appear to account for the relationships among the NAVSUP positions in both San Diego and Washington, D.C. These dimensions also account for the differences among the jobs in each location.

In order to better understand the 11 dimensions shown above in Table V-2, the relationships between how positions were described on the task inventory and the locations the positions the positions on the dimensions were analyzed. As each of the 100 positions had been located on each of the 11 dimensions, and each of the positions had a score on each of the 188 statements in the task inventory, correlations could be computed between each dimension and each task inventory item. Task items significantly correlated with the locations of positions on a dimension were then examined as they aid in interpreting the dimension.

Before these correlational analyses were conducted, the standard deviations of the variables being correlated were examined. This examination was required as correlations reflect the associations between and among variables, and variables with such small standard deviations that the variables approach being constants cannot have other than low correlations with other measures.

The average response to each of the 188 task items was also computed. Task items having low standard deviations and high means are tasks important to all, or the preponderance, of the positions surveyed. Task items with low standard deviations and low mean responses are tasks unimportant to the majority of the positions sampled.

Items with high means and low standard deviations deserve a few additional comments in this discussion. As mentioned in the previous paragraph, such task items are not useful in differentiating among the positions in the sample, but they are useful in two other ways. First, managerial tasks which tend to be performed in all of the 100 positions surveyed are areas in

which all incumbents to those positions should have been, or be, trained. Second, managerial tasks performed in all the positions surveyed are task areas which can be addressed in assessing the performances of incumbents to those positions.

Figure V-1 displays the task items plotted with standard deviation values on the ordinate and mean response values on the abscissa. The numbers plotted in Figure V-1 are the numbers of the task items statements as those statements appear in the task inventory. (A copy of the task inventory is included as Appendix 1.)

As Figure V-1 reveals, there are considerable differences among the means and standard deviations of the responses to the task inventory items. Items having low means and low standard deviations indicating they are unimportant to almost all of the NSC positions surveyed were:

Item 94: Sales quotas
Item 66: Expenditure of sums exceeding $10,000 in routine Operations
Item 24: Approve labor contracts
Item 32: Bargain with union representatives

These 4 items could be reasonably deleted from future task inventory surveys for supply positions.

Tasks having low means, but standard deviations indicating some respondents had positions in which the tasks were relatively important, were:

Item 22: Have a public speaking engagement at least as often as once every six months
Item 85: Relationships with unions
Item 95: Merchandising policies
Item 65: Payment of salary and/or wages
Item 12: Make speeches at public gatherings
Item 3: Maintain personal contact with heads of union groups
Item 70: Payment of organizational obligations
Item 78: Employee benefit plans
Item 68: Labor contracts

As the pattern of points in Figure V-1 shows, task items with higher means (indicating these tasks are a substantial part of the positions) also tended to have higher standard deviations. Thus, these items were adjudged important to some positions, and relatively unimportant to other positions. A somewhat obvious fact, that nevertheless deserves mention, is that none of the items had response means particularly near the maximum of 7. Unless the task inventory was deficient, it would seem that there are not any tasks which can be designated as constituting "a most significant portion" of all the Supply occupations surveyed. The task items having the 3 highest responses means were:

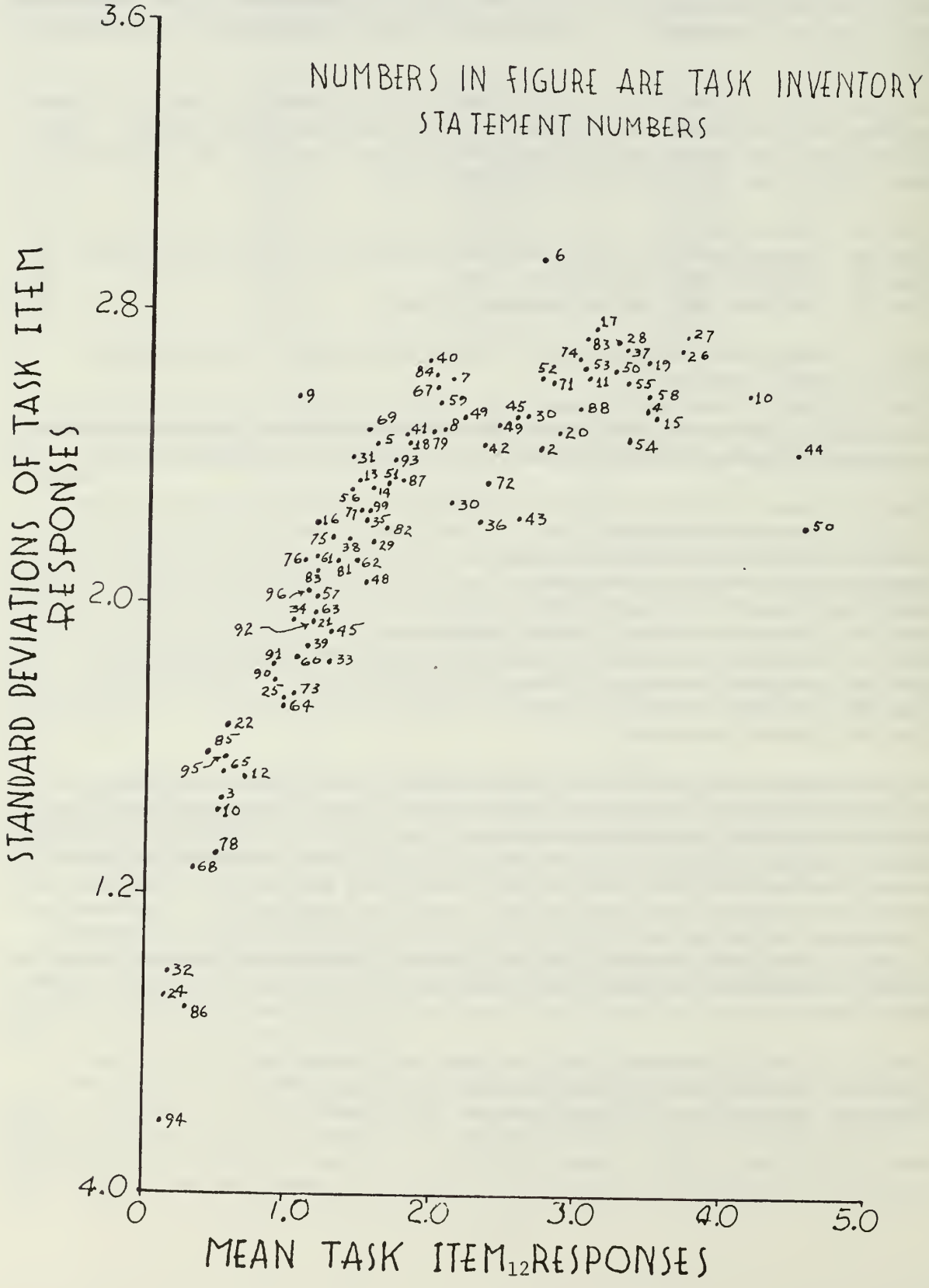
Item 10: Verify important facts before they become part of a record
Item 44: Trouble-shoot special problems as they arise
Item 50: Secure facts and information for others

# FIGURE V-1

## TASK ITEM RESPONSE STATISTICS

FOR ITEMS 1-96

SAMPLE = 100 SUPPLY POSITIONS

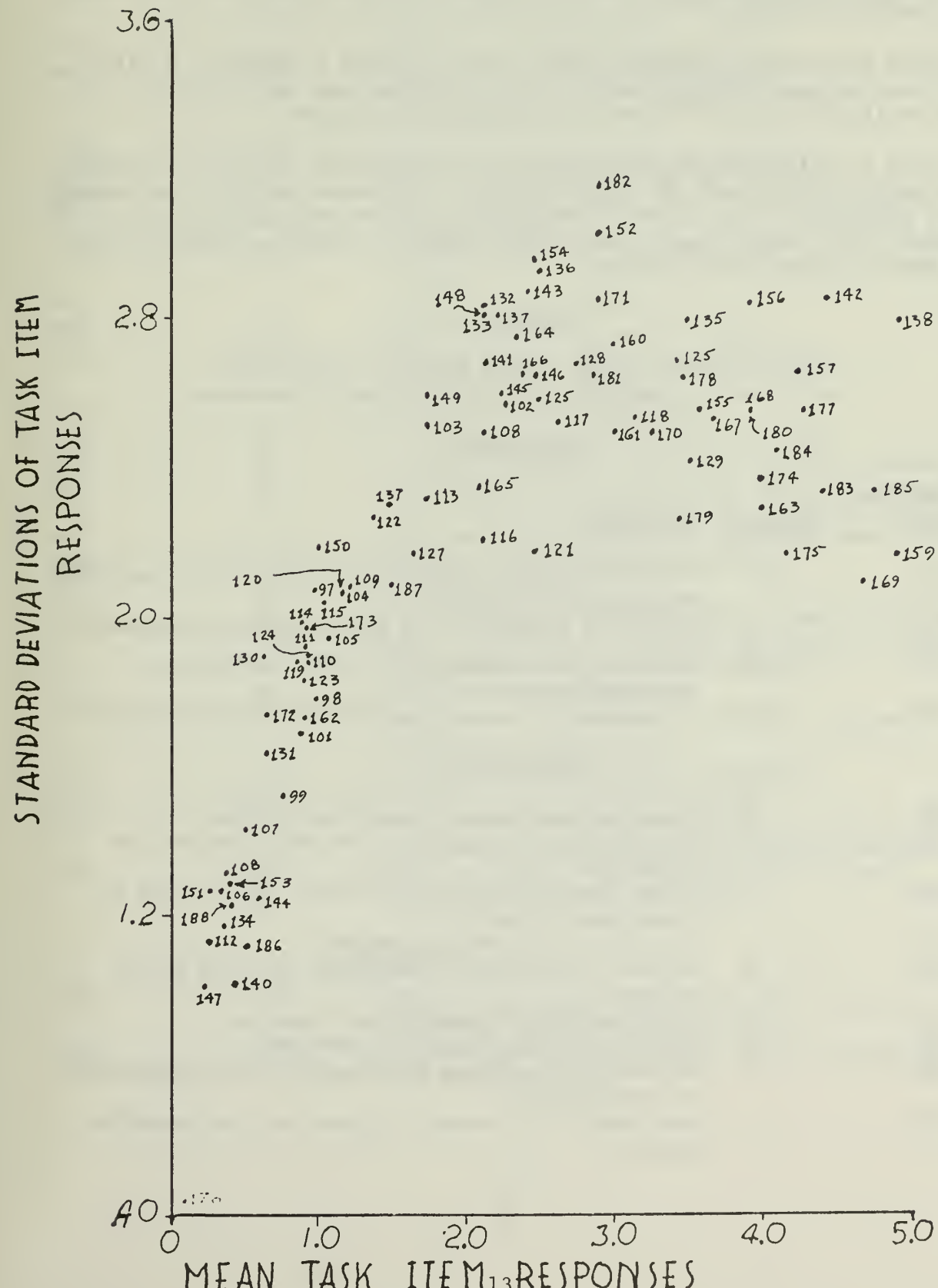


# FIGURE V-1 (CONTINUED)

## TASK ITEM RESPONSE STASTISTICS

FOR ITEMS 97-188

SAMPLE = 100 SUPPLY POSITIONS



Another use to be made of the data shown in Figure V-1 was proposed above to facilitate the identification of task items having low standard deviations. Such items are unlikely to be measurably correlated with other items since constants are independent of all variables. One must keep the standard deviations of the task inventory in mind, for instance, when examining the relationships among the responses to the 188 task inventory items and the scores of the 100 positions on the 11 factors determined from the canonical correlation analysis.

Given the results discussed above, and portrayed in Figure V-1, the correlations between the responses to the task items and the locations of the 100 positions on the 11 dimensions can now be examined.

Table V-3 displays the task inventory items having the major loadings (.20 or greater) with each of the dimensions. Parenthetically, if one wished to score positions on the eleven factors derived from the task inventory, the task items having significant correlations with the dimensions would be the task items utilized in the scoring.

TABLE V-3

Task Inventory Items Having Notable Correlations
with the 11 Dimensions for the 100 Supply Positions

DIMENSION I

| TASK INVENTORY ITEM | LOADING | STATEMENT |
|---|---|---|
| 136 | -.31 | Avoid any public comment critical of good customer/ supplier/contractor. |
| 156 | .23 | Signifies membership in top or middle management. |
| 159 | -.28 | Involves first-hand contact with customers of the organization. |
| 182 | .26 | Is considered a staff rather than line position. |

DIMENSION II

| | | |
|---|---|---|
| 001 | .22 | Plan the analysis of quantitative data. |
| 005 | .28 | Nominate key personnel in the organization for promotion |
| 008 | .28 | Visit each of the organization's major units at least once a year. |
| 011 | .29 | Edit drafts of special reports. |
| 016 | .28 | Approve transfers of personnel from one job to another. |
| 020 | .30 | Make analyses of statistical reports. |
| 027 | .27 | Appraise the results of operations. |
| 029 | .40 | Serve on a committee concerned with the appraisal of performance. |
| 031 | .39 | Set profit (efficiency) objectives for operating groups. |

| TASK INVENTORY ITEM | LOADING | STATEMENT |
|---|---|---|
| 037 | .27 | Analyze regularly the effectiveness of operations. |
| 040 | .24 | Supervise a team of specialists. |
| 042 | .31 | Analyze operating performance reports. |
| 043 | .22 | Devise procedures to properly reflect the results of operations. |
| 049 | .24 | Evaluate records of production. |
| 052 | .32 | Set goals for future performance. |
| 054 | .20 | Brief others on the contents of reports, letters, etc. |
| 055 | .24 | Appraise the results of operations. |
| 057 | .22 | Make recommendations for salary increases. |
| 059 | .23 | Keep a constant check upon the activities of subordinates. |
| 062 | .23 | Optimum return on investments of the organization. |
| 064 | .24 | Capital expenditures. |
| 065 | .26 | Payment of salary and/or wages. |
| 066 | .26 | Expenditure of sums exceeding $10,000 in routine operations. |
| 067 | .33 | Selection of new personnel. |
| 071 | .23 | Forecasting future trends or events. |
| 081 | .21 | Pricing organization products and/or services. |
| 082 | .23 | Promotion of the organization products/services. |
| 083 | .22 | Proper handling of other than personal monies. |
| 097 | .21 | Long-range solvency of the organization. |
| 108 | .30 | Over- or under-staffing of jobs. |
| 117 | .26 | Sizing up people. |
| 123 | .25 | New markets for future products (goods/services). |
| 124 | .31 | Market conditions affecting the users of the organization's products/services. |
| 125 | .29 | Efficiency of operations. |
| 126 | .35 | Preparation of quarterly (or more frequent) reports on operations. |
| 127 | .21 | Development of management trainees. |
| 131 | -.20 | Be active in community affairs. |
| 133 | -.23 | Even during most relaxed social occasions, avoid deviations from generally accepted behavior. |
| 136 | -.24 | Avoid any public comment critical of good customer/supplier/contractor. |
| | | DIMENSION III |
| 141 | .22 | Work with persons whose interests conflict with the demands of my position. |
| 159 | -.23 | Involves first-hand contact with customers of the organization. |

| TASK INVENTORY ITEM | LOADING | STATEMENT |
|---|---|---|
| | | DIMENSION IV |
| 034 | -.38 | Analyze expense items involving a gross of at least $5,000. |
| 065 | -.23 | Payment of salary and/or wages. |
| 070 | -.19 | Payment of organizational obligations. |
| 122 | .21 | Goodwill of the organization in the community. |
| 138 | -.20 | Be careful to avoid inadvertant disclosure of confidential information. |
| 140 | -.23 | Take a leading part in local community projects. |
| 141 | -.22 | Work with persons whose interests conflict with the demands of my position. |
| 146 | -.20 | Work with information of questionable reliability. |
| 149 | -.21 | Avoid publicity associated with personal difficulties. |
| 164 | .20 | Involves very frequent contact with the public. |
| | | DIMENSION V |
| 037 | -.23 | Analyze regularly the effectiveness of operations. |
| 038 | -.24 | Review budgets for operations. |
| 039 | -.38 | Establish effective expense controls. |
| 042 | -.25 | Analyze operating performance reports. |
| 043 | -.22 | Devise procedures to properly reflect the results of operation. |
| 046 | -.26 | Explain divergence between budget and actual expenditure |
| 048 | -.33 | Consolidate estimates from various sources. |
| 063 | -.21 | Preservation of capital assets. |
| 064 | -.26 | Capital expenditures. |
| 065 | -.22 | Payment of salary and/or wages. |
| 070 | -.25 | Payment of organizational obligations. |
| 085 | -.22 | Relationships with unions. |
| 105 | .27 | Opportunities to promote the organization before the public. |
| 120 | -.26 | Redesign of products to reduce costs. |
| 143 | .26 | Be capable of performing the jobs of all subordinates. |
| 150 | -.24 | Refrain from public criticism of the organization's operations. |
| 152 | .27 | Get to know each person under me. |
| | | DIMENSION VI |
| 050 | .27 | Secure facts and information for others. |
| 092 | .25 | Promises of delivery that are difficult to meet. |
| 093 | .21 | Product specifications. |
| 096 | -.22 | Market trends five to ten years in the future. (Demands for the future from the Navy & others.) |

| TASK INVENTORY ITEM | LOADING | STATEMENT |
|---|---|---|
| 100 | .24 | Interpretation of details of a collective bargaining agreement. |
| 114 | -.22 | The effectiveness of a force of 100 or more personnel. |
| 143 | -.27 | Be capable of performing the jobs of all subordinates. |
| 174 | .21 | Involve close association with women personnel. |
| | | DIMENSION VII |
| 040 | -.24 | Supervise a team of specialists. |
| 057 | -.21 | Make recommendations for salary increases. |
| 106 | -.27 | New competitive products. |
| 145 | .23 | Gain the respect of very important persons. |
| 146 | .27 | Work with information of questionable reliability. |
| 166 | .23 | Involves first-hand contact with machines and their operations. |
| 176 | -.30 | Carries a personal expense allowance. |
| | | DIMENSION VIII |
| 022 | -.20 | Have a public speaking engagement at least as often as once every six months. |
| 056 | -.24 | Define areas of responsibility for supervisory personnel. |
| 069 | -.25 | Definition of areas of responsibility of supervisory personnel. |
| 082 | .21 | Promotion of the organization products/services. |
| 146 | .25 | Work with information of questionable reliability. |
| 165 | .36 | Involves maintaining the respect of a few important persons. |
| | | DIMENSION IX |
| 003 | -.24 | Maintain personal contact with heads of union groups. |
| 012 | -.22 | Make speeches at public gatherings. |
| 022 | -.20 | Have a public speaking engagement at least once every six months. |
| 054 | -.21 | Brief others on the contents of reports, letter, etc. |
| 120 | .24 | Redesign of products to reduce costs. |
| 124 | .20 | Market conditions affecting the users of the organization's products/services. |
| 166 | .21 | Involves first-hand contact with machines and their operations. |

| TASK INVENTORY ITEM | LOADING | STATEMENT |
|---|---|---|
| | | DIMENSION X |
| 103 | .22 | Control of product quality. |
| 143 | -.22 | Be capable of performing the jobs of all subordinates. |
| 147 | .22 | Maintain membership in two or more business organizations. |
| 152 | -.24 | Get to know each person under me. |
| 155 | -.26 | Make decisions without consulting others. |
| | | DIMENSION XI |
| 186 | .20 | Involves dealing with the representatives of the legislative branch of the government. |
| 187 | .24 | Involves dealing with other than DOD representatives of the executive branch of the government. |

Interpreting the 11 Dimensions

The interpretations of the results of a factor analysis are nearly always difficult to make, and this analysis provides no exception. The labels or interpretations assigned here should be regarded as speculative appellations. The interpretations made here represent attempts to align these results with those Hemphill obtained from studying industrial executives' positions, as one would presume, apriori, that Civil Service and industrial managers' jobs could be described in terms of similar dimensions. A last caveat is in order. The research team did not possess enough knowledge about the positions studied -- particularly jobs in Washington, D.C. -- to feel comfortable with its interpretations of the labels applied to the dimensions. Position incumbents should therefore participate in interpreting the 11 dimensions.

The first dimension, as can be seen by examining Table V-3, had significant correlations with only four task inventory items. These four task items include two (numbers 136 and 159) that involved relationships and contacts with customers/suppliers/contractors, and these two items are associated in the same way (negatively) to the locations of the 100 positions on this dimension. The other two inventory items address the incumbent's perception of his job. In particular, they ask the incumbent to define his job in terms of its location in the organization; i.e., membership in top or middle management, or in the staff versus in the line. These two items are positively related to Dimension I; therefore, an incumbent who feels that these items are apt descriptors of his job will tend to receive a positive score on the first dimension.

Only seven jobs (see Table V-3) had other than very trivial associations with Dimension I. These jobs were:

DIMENSION I

| Position Number | Command | Position's Location on the Dimension | Job Title |
|---|---|---|---|
| 14 | San Diego | + | Contract Administrator |
| 18 | San Diego | - | Inventory Management Specialist |
| 65 | San Diego | + | Program Analyst |
| 70 | San Diego | + | Personnel Staffing Specialist |
| 166 | Washington | + | Management Analyst |
| 175 | Washington | + | Head, Budget Form. Branch |
| 177 | Washington | + | Fiscal Accounting Assistant |

The first dimension, considering both the task items and the positions related to it, appears to address positions' roles in the organization, and the extraorganizational contacts required of position incumbents. Further interpretation of this dimension should be done jointly by position incumbents and members of the research team.

Dimension number two has a large number of task items significantly related to it, and has been labeled as "Exercise of Broad Power and Authority". The positions most highly related to the second dimensions are shown below:

DIMENSION II

| Position Number | Command | Position's Location on the Dimension | Job Title |
|---|---|---|---|
| 39 | San Diego | - | Management Analyst |
| 19 | San Diego | + | Computer Specialist |
| 62 | San Diego | - | Property Disposal Assistant |
| 206 | Washington | + | Program Analyst |
| 174 | Washington | + | General Supply Officer |
| 165 | Washington | + | Deputy Commander, Administrative Management Analyst Officer |

An important pattern emerges when one examines the algebraic signs of the correlations of the positions with Dimension II in Table V-3. The Washington jobs associated with this dimension have, with one exception, positive correlations with the dimension, but the San Diego jobs associated with this dimension have negative correlations, with only two exceptions. High positive scores on Dimension II occur when respondents feel that the task items associated positively with this dimension (see Table V-3 for these task items) are important components of their jobs. Thus, this dimension seems to differentiate among the 100 supply positions along a broad power and authority continuum.

Dimension III had only two task inventory items significantly related to it, with all other task items having only trivial correlations with the locations of the 100 jobs on the dimension. Task item number 141, addressing working with persons whose interests conflict with the incumbent's position demands, related positively to this dimension. Task item number 151, addres-

sing the need to have first-hand contact with customers of the organization, had a negative association with Dimension III. Hence, positions scoring negatively on Dimension III are positions in which relationships with customers of the organization are important. Positions scoring positively on Dimension III are positions in which relating to the organization's "customers" tends to be unimportant, but working with persons whose interests conflict with those of the incumbent tends to be important.

Many jobs are strongly related to Dimension III as can be seen from examining Table V-3, and a number of positions had particularly noteworthy associations with Dimension III.

| | | DIMENSION III | |
|---|---|---|---|
| Position Number | Command | Position's Location on the Dimension | Job Title |
| 21 | San Diego | - | Equipment Specialist, General |
| 20 | San Diego | + | Supvy Equip. Spec. Gen |
| 56 | San Diego | + | Budget Analyst |
| 166 | Washington | + | Management Analyst |
| 158 | Washington | - | Branch Head |
| 190 | Washington | - | Supply Management Specialist |
| 181 | Washington | + | Computer Systems Analyst |
| 52 | San Diego | + | Procurement Assistant |
| 62 | San Diego | - | Property Disposal Assistant |
| 87 | San Diego | + | Supvy Labor Management Relations Specialist |

Because of the task items and jobs related to Dimension III, the research group suggests this dimension be interpreted and labeled as "Interpersonal Demands". The validity of this interpretation should be checked with position incumbents, however.

Dimension IV had negative correlations with eight task items (these items are listed in Table V-3), and positive correlations with two task items. Both of the task items having positive correlations address dealing with the public, while the items having negative correlations were concerned with paying organizational obligations, avoiding the disclosure of confidential information or facts concerning personal difficulties, working with data of questionable reliability, and with working with persons whose interests may conflict with the incumbent's.

The positions having strong associations with Dimension IV were the following:

| | | DIMENSION IV | |
|---|---|---|---|
| Position Number | Command | Position's location on the Dimension | Job Title |
| 40 | San Diego | -.609 | Computer Specialist |

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 52 | San Diego | +.468 | Procurement Assistant |
| 68 | San Diego | -.410 | Inventory Management Specialist |
| 80 | San Diego | +.477 | Computer Specialist |
| 178 | Washington | +.426 | Planning & Policy Br., Act. Dir. |
| 181 | Washington | +.494 | Computer Systems Analyst |
| 206 | Washington | -.420 | Program Analyst |

The research team's tentative interpretation of Dimension IV is "Concern with the Organization's Reputation."

Dimension V has been labeled "Preservation of Organizational Assets", based upon the nature of the task items significantly related to it. Positions having high relationships with this dimension were:

DIMENSION V

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 26 | San Diego | +.427 | Personnel Officer |
| 38 | San Diego | +.428 | Head Supv. Equip. Spec. Gen. |
| 186 | Washington | -.449 | Printing Officer |
| 176 | Washington | -.388 | Head, Mutual Security Program Br. |

The Washington jobs had a relationship to Dimension V that was opposite in direction to that of the San Diego jobs. High negative scores on Dimension V (such as obtained by positions 176 and 186) are developed when respondents feel task items having negative correlations with the dimension represent tasks important to their jobs. The complete listing of the task items having significant correlations with Dimension V is included in Table V-3. The task items having the highest correlations (both having negative correlations) with this dimension were: "Establish effective expense controls", and "Consolidate estimates from various sources". A number of other items having similar content also have negative associations with Dimension V. Four task items had positive associations with this dimension. Two of these four items concerned relationships with subordinates, while the other two items dealt with relationships with unions and the public.

Dimension VI has been labeled "Performing Line-Staff Functions" based upon the task inventory items and positions related to the dimension. Several positions were strongly related to this dimension. These positions were:

DIMENSION VI

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 25 | San Diego | +.658 | Inventory Management Specialist |
| 150 | Washington | -.488 | Tech. Advisor to the Commander |
| 65 | San Diego | -.441 | Program Analyst |
| 86 | San Diego | -.414 | Equip. Spec. General |

All except position number 25 had positions on the negative portion of this dimension. Negative locations on Dimension VI would be brought about by respondents feeling task items having negative correlations with this dimension were important in describing their jobs. Three task items had negative correlations with Dimension VI: "Market trends 5-10 years in the future (demands for the future from the Navy and others)", "The effectiveness of a force of 100 or more personnel", and "Be capable of performing the jobs of all subordinates". Task items having positive correlations with Dimension VI address interpreting a collective bargaining agreement, securing facts and information for others, promising deliveries, and concern with product specification.

Dimensions VII through X have not been named by the research team, and interactions among the research team and position incumbents will probably be needed for the dimensions to be interpreted. The task items and positions having notable relationships with these dimensions are discussed in the next several paragraphs:

DIMENSION VII

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 15 | San Diego | +.470 | Procurement Assistant |
| 29 | San Diego | +.573 | Computer Systems Analyst |
| 30 | San Diego | -.612 | Property Disposal Assistant |
| 39 | San Diego | -.402 | Management Analyst |
| 52 | San Diego | +.422 | Procurement Assistant |
| 56 | San Diego | -.501 | Budget Analyst |
| 68 | San Diego | -.430 | Inventory Management Specialist |
| 174 | Washington | +.429 | General Supply Officer |
| 186 | Washington | -.570 | Printing Officer |

Positive scores on Dimension VII are associated with endorsing task items such as: "Gain the respect of very important persons", "Work with information of questionable reliability", and "Involves first-hand contact with machines and their operations". Negative scores on this dimension are derived from items addressing: supervising specialists, recommending salary increases, concern with competitive products, and carrying a personal expense allowance (an item having a mean response of 0.09 on the 0 to 7 scale).

A good many positions have significant correlations with Dimension VIII. The positions having particularly strong relationships are shown below:

DIMENSION VIII

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 29 | San Diego | +.464 | Computer Systems Analyst |
| 52 | San Diego | -.529 | Procurement Assistant |
| 167 | Washington | -.645 | Transportation Officer |
| 180 | Washington | +.484 | Head, Systems Design & Analysis |

Task items associated with negative scores on this dimension address making public speeches and defining the responsibilities of supervisory personnel. Positive scores on Dimension VIII are derived from task items related to promoting the organization's products or services, working with information of questionable reliability, and maintaining the respect of a few important persons.

Dimension IX has a number of positions with low loadings upon it. The several positions having moderate loadings on this dimension were the following:

DIMENSION IX

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 71 | San Diego | +.420 | Supvy Equip. Spec. General |
| 80 | San Diego | -.454 | Computer Specialist |
| 150 | Washington | -.560 | Tech. Advisor to the Commander |
| 204 | Washington | -.513 | Mat'l Tech. Program Div. Director |

Task items associated with negative scores on Dimension IX relate to making public speeches, briefing others, and personal contacts with heads of union groups. Task items related to positive scores on this dimension deal with product design, market conditions, and first-hand contact with machines and their operations. Positions receiving negative scores on Dimension IX can be viewed as ones in which the incumbents perform as representatives of the organization.

Dimension X has several Washington positions with moderate loadings on it, while the San Diego loadings are all relatively low. The positions having moderate loadings on this factor were:

DIMENSION X

| Position Number | Command | Position's location on the Dimension | Job Title |
|---|---|---|---|
| 157 | Washington | -.610 | Program Manager |
| 177 | Washington | -.573 | Fiscal Accounting Assistant |
| 163 | Washington | -.549 | Program Analyst Officer |
| 181 | Washington | +.606 | Computer Systems Analyst |
| 186 | Washington | -.490 | Printing Officer |
| 191 | Washington | +.554 | Assist. Hd, Stock Point Sys. Br. |

Task items associated with negative scores appear to be related to supervision and to autonomy allowed on the job, while task items associated with positive scores refer to quality control and membership in other organizations.

Dimension XI has been labeled as "External Representation of the Organization to Other Parts of the Government", due to the content of the two task items related to it (dealing with non-DOD members of the executive branch and with members of the legislative branch). Positions having significant relationships with this dimension were:

| | | DIMENSION XI | |
|---|---|---|---|
| Position Number | Command | Position's location on the Dimension | Job Title |
| 193 | Washington | +.966 | Computer Equipment Analyst |
| 72 | San Diego | +.651 | Supvy Pers. Staffing Spec. |
| 59 | San Diego | +.552 | Storage Management Specialist |
| 44 | San Diego | +.516 | Inventory Management Spec. |
| 14 | San Diego | +.517 | Contract Administrator |

Position 193 had a rather astounding correlation of +.966 with Dimension XI, leading one to believe that this position incumbent frequently represents his organization to other parts of the government.

Summary of the Canonical Analysis of the Supply Positions

The main intent of this analysis was to determine the dimensions by which Supply jobs in San Diego and Washington could be described and compared. The research team does not feel overly comfortable with the results achieved, however, and feels that additional data and analyses would be required to determine the elusive dimensions. A refinement of the task inventory questionnaire should be the first step if the additional research is ever conducted.

It had been planned to use the results of the canonical analysis (a relatively small number of dimensions and the relationships of the positions to the dimensions) in the next analysis step: the development of clusters of positions placing similar behavioral requirements on their incumbents. Because of the research group's uneasiness with the results of the canonical correlation analysis, the analyses leading to clusters of positions used the responses to all 188 task items on the questionnaire -- rather than using the loadings of those positions on a set of dimensions determined via canonical analysis. The cluster analysis of the Supply positions is described later in this section of the report.

Canonical Correlations Results for Finance Occupations

Computer program and data storage constraints limited the canonical correlation analysis to 40 NRFC positions from San Diego, and 48 Washington, D.C. NAVCOMPT positions. Thus, all of the data from Washington were used, but nine sets of responses were chosen randomly and eliminated from the San Diego responses.

| Position Number* | Average Response** | Standard Deviation of the Responses to the 188 Item Inventory from this Position |
|---|---|---|
| 81 | 1.49 | 2.52 |
| 82 | 0.88 | 1.23 |
| 83 | 1.24 | 2.41 |
| 84 | 2.35 | 2.18 |
| 85 | 0.96 | 1.49 |
| 86 | 1.23 | 1.97 |
| 87 | 1.62 | 2.31 |
| 88 | 1.66 | 2.33 |
| 89 | 1.32 | 2.00 |
| 90 | 2.39 | 2.73 |
| 91 | 1.28 | 2.33 |
| 92 | 1.96 | 1.97 |
| 93 | 1.58 | 2.06 |
| 94 | 1.11 | 1.98 |
| 95 | 1.48 | 2.05 |
| 96 | 2.24 | 2.34 |

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* See Appendix 2 for job title-position number listings.

** The response scale for each of the task inventory statements ran from zero through seven.

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Table V-5 displays the task 188 response statistics obtained from all 96 Finance positions. Task items with higher means are those that were viewed by the respondents as being substantial parts of their positions. The task items having response means indicating tasks viewed as being of substantial importance were:

Item 10: Verify important facts before they become part of a record.
Item 50: Secure facts and information for others.
Item 142: Sit at a desk at least 20 hours per week.
Item 138: Be very careful to avoid inadvertent disclosure of confidential information.
Item 157: Offers an opportunity to utilize professional training.
Item 158: Involves dealing with persons within the organization of substantially higher rank.
Item 169: Involves meeting problems produced by factors over which I have no control.
Item 175: Involves many regularly assigned duties.
Item 177: Directly affects the quality of the organization's products or services.
Item 183: Involves working under constant pressure to meet deadlines.
Item 185: Involves dealing with other Navy commands.

Task items having low means and low standard deviations represent tasks perceived by most respondents as being unimportant to their positions. Item 94, "Sales quotas", which had a mean and a standard deviation both equal to exactly zero, was certainly seen as a task that was not a part of the Finance positions surveyed. Some of the other tasks that were perceived as unrelated to the respondents' positions were:

TABLE V-5

Task Item Response Statistics

(Sample = 97 Finance Positions)

| Task Inventory Item Number* | Mean** | Standard Deviation** |
|---|---|---|
| 1 | 2.48 | 2.39 |
| 2 | 2.91 | 2.39 |
| 3 | 0.31 | 0.88 |
| 4 | 3.38 | 2.64 |
| 5 | 1.24 | 2.12 |
| 6 | 3.45 | 2.69 |
| 7 | 2.07 | 2.61 |
| 8 | 0.97 | 1.77 |
| 9 | 1.22 | 1.90 |
| 10 | 4.12 | 2.39 |
| 11 | 2.64 | 2.25 |
| 12 | 0.53 | 1.09 |
| 13 | 0.88 | 2.02 |
| 14 | 0.95 | 1.82 |
| 15 | 3.56 | 2.28 |
| 16 | 1.10 | 1.86 |
| 17 | 3.67 | 2.72 |
| 18 | 0.86 | 1.85 |
| 19 | 3.46 | 2.42 |
| 20 | 2.53 | 2.49 |
| 21 | 1.26 | 1.92 |
| 22 | 0.40 | 1.28 |
| 23 | 2.43 | 2.30 |
| 24 | 0.06 | 0.52 |
| 25 | 0.84 | 1.71 |
| 26 | 3.09 | 2.18 |
| 27 | 3.44 | 2.63 |
| 28 | 2.80 | 2.29 |
| 29 | 1.51 | 1.99 |
| 30 | 1.26 | 1.87 |
| 31 | 1.34 | 2.03 |
| 32 | 0.16 | 0.77 |
| 33 | 0.41 | 1.18 |
| 34 | 0.75 | 1.81 |
| 35 | 1.16 | 1.87 |
| 36 | 1.82 | 2.16 |
| 37 | 2.71 | 2.45 |
| 38 | 1.00 | 1.98 |
| 39 | 0.86 | 1.78 |

*A copy of the task inventory is in appendix 1.

**The response scale for each of the task inventory statements ran from zero through seven.

| Task Inventory Item Number* | Mean** | Standard Deviation** |
|---|---|---|
| 40 | 1.53 | 2.48 |
| 41 | 2.18 | 2.67 |
| 42 | 1.90 | 2.30 |
| 43 | 2.53 | 2.42 |
| 44 | 4.31 | 2.28 |
| 45 | 2.99 | 2.44 |
| 46 | 0.92 | 1.78 |
| 47 | 1.73 | 2.20 |
| 48 | 1.12 | 1.91 |
| 49 | 2.11 | 2.43 |
| 50 | 4.41 | 1.95 |
| 51 | 1.16 | 1.77 |
| 52 | 2.47 | 2.37 |
| 53 | 2.45 | 2.50 |
| 54 | 2.88 | 2.23 |
| 55 | 2.62 | 2.40 |
| 56 | 1.09 | 2.06 |
| 57 | 1.57 | 2.35 |
| 58 | 2.77 | 2.28 |
| 59 | 2.56 | 2.64 |
| 60 | 2.16 | 2.50 |
| 61 | 0.63 | 1.64 |
| 62 | 1.11 | 1.70 |
| 63 | 0.74 | 1.70 |
| 64 | 0.77 | 1.72 |
| 65 | 1.10 | 2.14 |
| 66 | 1.34 | 2.24 |
| 67 | 1.96 | 2.31 |
| 68 | 0.23 | 1.19 |
| 69 | 0.99 | 1.93 |
| 70 | 0.58 | 1.54 |
| 71 | 2.06 | 2.32 |
| 72 | 2.38 | 2.17 |
| 73 | 0.75 | 1.70 |
| 74 | 2.62 | 2.53 |
| 75 | 0.63 | 1.58 |
| 76 | 1.29 | 2.24 |
| 77 | 1.41 | 2.11 |
| 78 | 0.47 | 1.12 |
| 79 | 2.16 | 2.48 |
| 80 | 2.21 | 2.53 |
| 81 | 0.65 | 1.60 |
| 82 | 1.11 | 1.95 |
| 83 | 1.07 | 1.89 |
| 84 | 1.40 | 2.11 |

| Task Inventory Item Number* | Mean** | Standard Deviation** |
|---|---|---|
| 85 | 0.37 | 0.99 |
| 86 | 0.32 | 0.88 |
| 87 | 1.37 | 2.25 |
| 88 | 1.79 | 2.20 |
| 89 | 0.48 | 1.16 |
| 90 | 0.62 | 1.55 |
| 91 | 0.30 | 1.05 |
| 92 | 1.30 | 2.04 |
| 93 | 0.94 | 1.97 |
| 94 | 0.0 | 0.0 |
| 95 | 0.09 | 0.65 |
| 96 | 0.56 | 1.41 |
| 97 | 0.51 | 1.44 |
| 98 | 1.31 | 2.02 |
| 99 | 1.29 | 2.02 |
| 100 | 0.27 | 0.90 |
| 101 | 0.39 | 1.25 |
| 102 | 1.55 | 2.02 |
| 103 | 2.67 | 2.70 |
| 104 | 0.93 | 1.62 |
| 105 | 0.46 | 1.17 |
| 106 | 0.16 | 0.80 |
| 107 | 0.31 | 0.88 |
| 108 | 1.57 | 2.03 |
| 109 | 0.58 | 1.38 |
| 110 | 0.35 | 1.11 |
| 111 | 0.46 | 1.12 |
| 112 | 0.23 | 0.98 |
| 113 | 1.37 | 1.93 |
| 114 | 0.44 | 1.36 |
| 115 | 1.00 | 1.85 |
| 116 | 1.79 | 1.99 |
| 117 | 2.48 | 2.12 |
| 118 | 3.16 | 2.18 |
| 119 | 0.77 | 1.82 |
| 120 | 1.21 | 2.17 |
| 121 | 2.66 | 2.51 |
| 122 | 1.08 | 1.82 |
| 123 | 0.51 | 1.40 |
| 124 | 0.33 | 1.07 |
| 125 | 3.97 | 2.37 |
| 126 | 2.33 | 2.49 |
| 127 | 1.21 | 1.60 |
| 128 | 2.02 | 2.36 |
| 129 | 3.62 | 2.41 |
| 130 | 0.65 | 1.77 |

| Task Inventory Item Number* | Mean** | Standard Deviation** |
|---|---|---|
| 131 | 0.25 | 0.75 |
| 132 | 1.31 | 2.26 |
| 133 | 1.63 | 2.15 |
| 134 | 0.29 | 0.94 |
| 135 | 3.25 | 2.56 |
| 136 | 1.25 | 2.26 |
| 137 | 2.27 | 2.68 |
| 138 | 4.42 | 2.78 |
| 139 | 1.10 | 1.80 |
| 140 | 0.10 | 0.42 |
| 141 | 1.01 | 1.69 |
| 142 | 4.67 | 2.44 |
| 143 | 3.25 | 2.60 |
| 144 | 0.40 | 1.23 |
| 145 | 1.99 | 2.29 |
| 146 | 1.68 | 1.98 |
| 147 | 0.04 | 0.20 |
| 148 | 1.65 | 2.39 |
| 149 | 1.07 | 1.88 |
| 150 | 0.80 | 1.77 |
| 151 | 0.21 | 0.54 |
| 152 | 3.41 | 2.79 |
| 153 | 0.11 | 0.50 |
| 154 | 2.13 | 2.60 |
| 155 | 3.35 | 2.33 |
| 156 | 3.61 | 2.76 |
| 157 | 4.71 | 2.16 |
| 158 | 4.52 | 2.25 |
| 159 | 3.99 | 2.62 |
| 160 | 3.09 | 2.41 |
| 161 | 3.20 | 2.30 |
| 162 | 0.61 | 1.50 |
| 163 | 3.62 | 2.10 |
| 164 | 1.86 | 2.37 |
| 165 | 2.29 | 2.33 |
| 166 | 2.31 | 2.47 |
| 167 | 3.52 | 2.48 |
| 168 | 3.59 | 2.50 |
| 169 | 4.33 | 2.22 |
| 170 | 3.09 | 2.37 |
| 171 | 2.85 | 2.83 |
| 172 | 0.13 | 0.57 |
| 173 | 0.65 | 1.80 |
| 174 | 3.97 | 2.50 |
| 175 | 4.03 | 2.19 |
| 176 | 0.15 | 0.74 |

| Task Inventory Item Number* | Mean** | Standard Deviation** |
|---|---|---|
| 177 | 4.65 | 2.22 |
| 178 | 3.90 | 2.44 |
| 179 | 2.81 | 2.43 |
| 180 | 3.41 | 2.41 |
| 181 | 2.55 | 2.55 |
| 182 | 3.12 | 3.05 |
| 183 | 4.26 | 2.33 |
| 184 | 3.38 | 2.70 |
| 185 | 5.21 | 2.25 |
| 186 | 0.68 | 1.67 |
| 187 | 0.95 | 1.84 |
| 188 | 0.34 | 1.30 |

Item 3: Maintain personal contact with heads of union groups.
Item 22: Have a public speaking engagement as often as once every six months.
Item 24: Approve labor contracts.
Item 33: Review reports on inventory.
Item 68: Labor contracts.
Item 85: Relationships with unions.
Item 95: Merchandising policies.
Item 100: Interpretation of details of a collective bargaining agreement.
Item 101: What business activities the organization is to be engaged in.
Item 105: Opportunities to promote the organization before the public.
Item 106: New competitive products.
Item 107: Union activities within the organization.
Item 110: New markets for the organization's products/services.
Item 111: Engineering standards.
Item 112: Details of a collective bargaining agreement.
Item 114: The effectiveness of a force of 100 or more personnel.
Item 124: Market conditions affecting the users of the organization's products/services.
Item 131: Be active in community affairs.
Item 134: Maintain membership in one or more clubs.
Item 140: Take a leading part in local community projects.
Item 144: Participate in outside activities to increase the prestige of the organization.
Item 147: Maintain membership in two or more business organizations.
Item 151: Maintain active membership in two or more professional organizations.
Item 153: Be an active member of at least one civic organization.
Item 172: Provides an organization's automobile for my use.
Item 176: Carries a personal expense allowance.
Item 188: Involves dealing with representatives of the judicial branch of government.

The canonical correlation analysis yielded 14 significant factors. Table V-6 displays the statistics concerning these factors. These factors account for the relationships among the finance positions in both locations and also explain the differences among the jobs at each location.

After the factors were statistically extracted from the data, the next step was to rotate the factors so that (ideally):

a. Each factor would have some positions which were highly (positively and/or negatively) related to it.

b. Each position would have high relationships with only one or two factors, and its relationship with the other factors would be zero.

These two goals are psychologically appealing because their achievement yields a set of factors that are (usually) interpretable and, hence, practically useful. Further, if any given position (job) can be described in terms of a small set of variables -- at least smaller than 188, the size of the original task inventory -- it would be relatively easy to describe and compare the positions.

TABLE V-6

Dimensions Determined from the Canonical Correlations Analysis and Tests for their Significance (Data were from 88 Finance Positions)

| Dimensions (Factors) | Canonical Correlation | Chi-Square | Degrees of Freedom |
|---|---|---|---|
| 1 | .973 | 3600.07 | 1920 |
| 2 | .932 | 3179.75 | 1833 |
| 3 | .908 | 2887.40 | 1748 |
| 4 | .906 | 2637.55 | 1665 |
| 5 | .856 | 2390.45 | 1584 |
| 6 | .848 | 2201.50 | 1505 |
| 7 | .838 | 2019.57 | 1428 |
| 8 | .820 | 1845.46 | 1353 |
| 9 | .799 | 1685.68 | 1280 |
| 10 | .777 | 1539.98 | 1209 |
| 11 | .767 | 1407.02 | 1140 |
| 12 | .755 | 1279.65 | 1073 |
| 13 | .741 | 1158.59 | 1008 |
| 14 | .713 | 1044.47 | 945 |

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The rotation yielded one somewhat surprising result: the first factor had only trivial relationships with all of the 88 positions after the rotation had been completed. The most plausible explanation for this finding would seem to be that Factor I is a factor defining a very minor but general similarity among all of the 88 finance jobs studied.

Table V-7 presents the finance positions having high associations with the remaining 13 factors.

TABLE V-7

Finance Positions having Significant Relationships with the Rotated Factors (Relationships greater than +/-.30 are those included)

FACTOR II

| Command | Factor Loading | Position |
|---|---|---|
| San Diego | .91 | Supervisory Computer Aide |
| San Diego | -.78 | Computer Programmer |
| San Diego | .36 | Voucher Examiner Supervisor |
| San Diego | -.38 | Disbursing Specialist |
| San Diego | .38 | Disbursing Specialist |
| San Diego | -.40 | Supervisory Accounting Technician |
| Washington | -.32 | Management Analyst |
| Washington | .63 | Program Manager |
| Washington | .30 | Systems Accountant |
| Washington | .73 | Military Pay Regulations Specialist |

| Location | Factor Loading | Position |
|---|---|---|
| Washington | -.31 | Computer Specialist |
| | FACTOR III | |
| San Diego | -.38 | Supervisory Disbursing Specialist |
| San Diego | -.45 | Management Analyst |
| San Diego | .31 | Disbursing Specialist |
| San Diego | .57 | Supervisory Accounts Maintenance Clerk |
| San Diego | .48 | Military Pay Supervisor |
| San Diego | .39 | Computer Specialist |
| Washington | -.52 | Program Manager |
| Washington | -.56 | Supervisory Systems Accountant |
| Washington | -.30 | Program Analyst |
| Washington | .42 | Military Pay Regulations Specialist |
| Washington | .59 | Computer Operations Supervisor |
| Washington | .34 | Director, ADP Operations Division |
| Washington | .35 | Computer Specialist |
| Washington | .35 | Program Analyst |
| | FACTOR IV | |
| San Diego | .35 | Computer Specialist |
| San Diego | -.33 | Computer Specialist |
| San Diego | .32 | Computer Specialist |
| San Diego | .69 | Computer Specialist |
| San Diego | -.49 | Disbursing Specialist |
| San Diego | .89 | Supervisory Accounting Technician |
| San Diego | -.50 | Supervisory Accounts Maintenance Clerk |
| San Diego | .32 | Military Pay Supervisor |
| Washington | -.36 | Program Manager |
| Washington | .51 | Program Analyst |
| Washington | .30 | Computer Specialist |
| Washington | -.40 | Program Analyst |
| Washington | -.39 | Dir. Program/Budget Systems Ops |
| | FACTOR V | |
| San Diego | -.39 | Computer Specialist |
| San Diego | -.30 | Computer Specialist |
| San Diego | .33 | Supervisory Disbursing Specialist |
| San Diego | .45 | Supervisory Accounting Technician |
| San Diego | -.66 | Supervisory Accountant |
| San Diego | -.63 | Management Analyst |
| San Diego | .53 | Supervisory Fiscal Accounting Officer |
| Washington | -.50 | Management Analyst |
| Washington | .30 | Progam Analyst |
| Washington | -.55 | Fiscal Accountant Assistant |
| Washington | -.35 | Program Analyst |
| Washington | .42 | Acting Head Secretariat Accounts Branch |
| Washington | -.79 | Director, Admin Services Div* |
| Washington | .51 | Program Analyst |

*Position incumbent responded "LCDR, USN" on task inventory when asked his grade.

| Location | Factor Loading | Position |
|---|---|---|
| | FACTOR VI | |
| San Diego | .30 | Office Services Supervisor |
| San Diego | -.39 | Supervisory Mail/File Clerk |
| San Diego | .37 | Computer Specialist |
| San Diego | -.31 | Voucher Examiner Supervisor |
| San Diego | .67 | Disbursing Specialist |
| San Diego | -.60 | Disbursing Specialist |
| San Diego | -.30 | Supervisory Accountant |
| San Diego | -.49 | Fiscal Accounting Assistant |
| San Diego | -.30 | Computer Specialist |
| Washington | .44 | Branch Head, Nonapprop. Funds & Spec Systems |
| Washington | -.47 | Computer Specialist |
| Washington | -.53 | Computer Specialist |
| Washington | .53 | Computer Specialist |
| Washington | -.51 | Acting Head Secretariat Accounts Branch |
| Washington | .52 | Supervisory Accounting Assistant |
| Washington | .42 | Program Analyst |
| | FACTOR VII | |
| San Diego | -.56 | Fiscal Accounting Supervisor |
| San Diego | .45 | Computer Specialist |
| San Diego | -.42 | Disbursing Specialist |
| San Diego | -.32 | Computer Programmer |
| San Diego | -.35 | Supervisory Disbursing Specialist |
| San Diego | .60 | Disbursing Specialist |
| San Diego | .77 | Military Pay Supervisor |
| San Diego | .50 | Military Pay Supervisor |
| San Diego | -.64 | Supervisory Fiscal Accounting Officer |
| Washington | .41 | Management Analyst |
| Washington | -.35 | Budget Officer |
| Washington | .35 | Computer Specialist |
| Washington | -.67 | Systems Accountant |
| Washington | .57 | Program Analyst |
| Washington | .41 | Ops Research Analyst |
| Washington | -.33 | Program Analyst |
| | FACTOR VIII | |
| San Diego | .32 | Voucher Examiner Supervisor |
| San Diego | -.30 | Computer Specialist |
| San Diego | .33 | Disbursing Specialist |
| San Diego | -.56 | Management Analyst |
| San Diego | -.32 | Disbursing Specialist |
| San Diego | .57 | Management Analyst |
| San Diego | .34 | Supervisory Accounts Maintenance Clerk |
| Washington | -.50 | Supervisory Fiscal Accounting Officer |
| Washington | -.54 | Budget Officer |
| Washington | .85 | Systems Accountant |

| Location | Factor Loading | Position |
|---|---|---|
| Washington | -.69 | Systems Accountant |
| Washington | -.31 | Director, Functional Systems Div |
| Washington | .35 | Computer Specialist |
| Washington | -.41 | Director ADP Ops Div |
| Washington | -.35 | Program Analyst |
| Washington | .68 | Program Analyst |
| | FACTOR IX | |
| San Diego | -.86 | Voucher Examiner, Supervisory Typing |
| San Diego | .33 | Computer Specialist |
| San Diego | .53 | Computer Specialist |
| San Diego | .58 | Voucher Examiner Supervisor |
| San Diego | -.37 | Disbursing Specialist |
| San Diego | .87 | Disbursing Specialist |
| San Diego | .41 | Voucher Examiner Supervisor |
| San Diego | -.44 | Disbursing Specialist |
| Washington | .44 | Director, Functional Systems Division |
| Washington | .66 | Military Pay Regulations Specialist |
| Washington | -.70 | Computer Specialist |
| Washington | .48 | Computer Specialist |
| Washington | .91 | Data Control Branch Head |
| | FACTOR X | |
| San Diego | .40 | Computer Specialist |
| San Diego | -.38 | Voucher Examiner Supervisor |
| San Diego | .49 | Supervisory Disbursing Specialist |
| San Diego | .33 | Disbursing Specialist |
| San Diego | -.38 | Computer Specialist |
| San Diego | .42 | Voucher Examiner Supervisor |
| Washington | -.48 | Budget Officer |
| Washington | -.48 | Program Manager |
| Washington | -.56 | Computer Specialist |
| Washington | .38 | Supervisory Accounting Assist. |
| Washington | .30 | Data Control Branch Head |
| | FACTOR XI | |
| San Diego | .32 | Computer Specialist |
| San Diego | -.32 | Voucher Examiner Supervisor |
| San Diego | -.73 | Digital Computer Sys. Admin. |
| Washington | -.31 | Program Manager |
| Washington | .32 | Fiscal Accountant |
| Washington | .32 | Computer Specialist |

| Location | Factor Loading | Position |
|---|---|---|
| | FACTOR XII | |
| San Diego | .61 | Computer Programmer |
| San Diego | .46 | Supervisory Accountant Maint. Clerk |
| San Diego | .54 | Disbursing Specialist |
| Washington | .39 | Program Manager |
| Washington | .89 | Systems Accountant |
| Washington | .56 | Systems Accountant |
| Washington | -.52 | Program Analyst |
| | FACTOR XIII | |
| San Diego | .75 | Disbursing Specialist |
| San Diego | -.40 | Disbursing Specialist |
| San Diego | -.64 | Disbursing Specialist |
| San Diego | -.40 | Supervisory Accounting Technician |
| San Diego | .35 | Military Pay Supervisor |
| Washington | -.55 | Fiscal Accountant |
| Washington | .63 | Military Pay Regulations Specialist |
| Washington | .33 | Military Pay Regulations Specialist |
| Washington | .75 | Computer Specialist |
| Washington | .60 | Ops Res Analyst |
| | FACTOR XIV | |
| San Diego | -.66 | Office Services Supervisor |
| San Diego | -.33 | Disbursing Specialist |
| San Diego | .75 | Computer Specialist |
| San Diego | -.39 | Supervisory Accounting Technician |
| Washington | -.31 | Management Analyst |
| Washington | -.31 | Budget Officer |
| Washington | .36 | Supervisory Systems Accountant |
| Washington | -.39 | Systems Accountant |
| Washington | .36 | Fiscal Accountant |
| Washington | -.44 | Military Pay Regulations Specialist |
| Washington | .59 | Computer Specialist |
| Washington | -.46 | Acting Head Secretariat Accounts Branch |

All of the factors reported in Table V-7 have positions representing both San Diego and Washington commands. A factor loading for a position in Table V-7 can be thought of as being analogous to the distance of that position from the origin on an axis in a coordinate system. Using this analogy, and looking at the factor loadings for Factor II in Table V-7 as examples, the position of Supervisory Computer Aide in San Diego is near the positive extreme on Factor II, while one computer programmer in San Diego is near the negative extreme of Factor II. The other positions reported for Factor II are represented by points between the two aforementioned observed extremes. It must be kept in mind, however, that the results for all 13 of the useable factors have to be consulted

when comparing positions with one another.

The positions for which task inventories were completed included fewer jobs than positions, hence, there are, for instance, several Disbursing Specialists, Computer Programmers, and so on, represented in the data. As there was no attempt to have only task inventory data from one position for each job, the results in Table V-7 often show more than one position of a certain type of job as being associated with the same factor. Such a finding is well and good, and it reaffirms one's faith in the sensibleness of the Civil Service job classification system. On the other hand, when all the identically titled positions in the sample do not end up with high similar patterns of factor loadings, suspicions arise about the task inventory, the analyses conducted using the task data, and about the Civil Service grades and classifications assigned the bumptious positions.

The research team had accumulated sufficient prior experience in such analyses to suspect, apriori, that data from identically named positions would not always yield the same factor loading patterns. However, rather than duck this potential problem by eliminating "duplicate" positions or by averaging the task data over such positions, the researchers decided to let the data speak for themselves.

As the factors presented in Table V-7 each have a variety of positions related to them, rather than one factor having, say, only Disbursing Specialists related to it, and each of the other factors also having only one type of job apiece loading on them, attempts at interpreting the "meanings" of the factors required a further step. In this next step, the responses of the 88 position incumbents to the 188 task items are used in correlation analyses.

Because each of the 88 positions had loadings on each of the 13 useful factors, and because each of these positions had been described in terms of each of the 188 task items in the task inventory (see Appendix 1), the correlations could be computed among the 13 sets of 88 factor loadings and the 188 sets of 88 task item responses. Through this correlational analysis, task items having significant relationships with the factors could be identified. Then, the set of task items related to a particular factor can be used in interpreting the meaning of that factor. The task items having statistically significant correlations with the factors are presented in Table V-8.

TABLE V-8

Task Items having Significant Correlations with the Finance Factors

| Task Item Number | Correlation | Task Statement |
|---|---|---|
| | FACTOR II | |
| 15 | .23 | On the average spend at least one hour per day completing routine paperwork. |
| 73 | -.22 | Development of new business. |
| 83 | -.22 | Proper handling of other than personal monies. |
| 102 | -.20 | Long-range trends in management thinking |
| 116 | -.25 | Pilot projects. |
| 117 | -.20 | Sizing up people. |
| 118 | -.19 | Evaluating new ideas. |
| 123 | -.22 | New markets for future products/services. |
| 163 | -.20 | Allows great freedom of action. |
| 175 | .19 | Involves many regularly assigned duties. |
| 180 | .22 | Involves activities that are not closely supervised or controlled. |
| 184 | .29 | Involves working with members of other armed services or the DOD. |
| | FACTOR III | |
| 5 | .29 | Nominate key personnel in the organization for promotion. |
| 10 | -.20 | Verify important facts before they become part of a record. |
| 18 | -.18 | Make recommendations on matters at least as important as the construction of a new plant, or warehouse. |
| 33 | .19 | Review reports on inventory. |
| 45 | .20 | Plan the best use of available facilities. |
| 57 | .22 | Make recommendations for salary increases. |
| 74 | .22 | Enforcement of rules and regulations. |
| 75 | .18 | Control of inventories. |
| 77 | .25 | Protection of organization's property. |
| 87 | .29 | Delivery schedules. |
| 119 | .30 | Responsibility for items having a value of at least $100,000 |
| 128 | .22 | Human Relations practices. |
| 134 | -.23 | Maintain membership in one or more clubs. |
| 164 | .29 | Involves very frequent contact with the public. |
| 166 | .22 | Involves first-hand contact with machines and their operations. |
| 182 | -.23 | Is considered a staff rather than line position. |
| 185 | -.19 | Involves dealing with other Navy commands. |

| Task Item Number | Correlation | Task Statement |
|---|---|---|
| 151 | .25 | Maintain active membership in two or more professional organizations. |
| 163 | -.19 | Allows great freedom of action. |
| 165 | -.23 | Involves maintaining the highest respect of a few important persons. |
| 172 | -.27 | Provides an organization's automobile for my use. |
| 173 | -.18 | Entitles me to my own secretary. |
| 179 | -.23 | Involves very few routine activities. |
| 181 | -.20 | Provides an office that is located in one of the more desirable areas. |
| | FACTOR IX | |
| 5 | .21 | Nominate key personnel in the organization for promotion. |
| 16 | .19 | Approve transfers of personnel from one job to another. |
| 40 | .29 | Supervise a team of specialists. |
| 41 | .19 | Represent the CO outside the organization. |
| 44 | .19 | Trouble-shoot special problems as they arise. |
| 56 | .19 | Define areas of responsibility for supervisory personnel. |
| 129 | -.20 | Consolidation of data/info from numerous sources. |
| 159 | .21 | Involves first-hand contact with customers of the organization. |
| 163 | .28 | Allows great freedom of action. |
| 170 | .19 | Allows me to make decisions that are not subject to review. |
| 184 | .19 | Involves working with members of other armed services or the DOD. |
| | FACTOR X | |
| 117 | -.26 | Sizing up people. |
| 118 | -.18 | Evaluating new ideas. |
| 133 | .18 | Even during most relaxed social occasions, avoid deviations from generally accepted behavior. |
| 134 | -.21 | Maintain membership in one or more clubs. |
| 173 | .17 | Entitles me to my own secretary. |
| 184 | -.19 | Involves working with members of other armed services or the DOD. |
| | FACTOR XI | |
| 5 | -.30 | Nominate key personnel in the organization for promotion. |
| 6 | -.25 | Make assignments of jobs to subordinates. |
| 16 | -.38 | Approve transfers of personnel from one job to another. |
| 17 | .23 | Keep detailed and accurate records. |
| 18 | -.25 | Make recommendations on matters at least as important as construction of a new plant/warehouse. |
| 20 | -.25 | Make analyses of statistical reports. |
| 23 | -.25 | Be involved in establishing objectives for the organization. |
| 25 | -.31 | Justify capital expenditures. |
| 28 | -.21 | Anticipate new and/or changed demands for products/services. |

| Task Item Number | Correlation | Task Statement |
|---|---|---|
| 29 | -.28 | Serve on a committee concerned with appraisal of performance. |
| 30 | -.18 | Compute the costs of producing products/services. |
| 31 | -.26 | Set profit (efficiency) objectives for operating groups. |
| 35 | .19 | Furnish guidance to others in the preparation of budget. |
| 37 | -.27 | Analyze regularly the effectiveness of operations. |
| 38 | -.24 | Review budgets for operation. |
| 40 | -.20 | Supervise a team of specialists. |
| 41 | -.24 | Represent the CO outside the organization. |
| 42 | -.31 | Analyze operating performance reports. |
| 47 | -.22 | Make use of staff people. |
| 48 | -.20 | Consolidate esimates from various sources. |
| 49 | -.28 | Evaluate records of production. |
| 51 | -.30 | Serve as a member of one or more committees concerned with organizational policy. |
| 52 | -.25 | Set goals for future performance. |
| 56 | -.30 | Define areas of responsibility for supervisory personnel. |
| 57 | -.25 | Make recommendations for salary increases. |
| 58 | -.22 | Serve as consultant in interpretation of data. |
| 59 | -.22 | Keep constant check upon activities of subordinates. |
| 60 | -.31 | Long-range objectives of the organization. |
| 61 | -.35 | Preparation of annual budget of at least $200,000. |
| 62 | -.32 | Optimum return on investments of the organization. |
| 63 | -.24 | Preservation of capital assets. |
| 66 | -.19 | Expenditure of sums exceeding $10,000 in routine matters. |
| 69 | -.21 | Define areas of responsibility for supervisory personnel. |
| 71 | -.26 | Forecasting future trends or events. |
| 88 | -.22 | Coordination of activities of many subdivisions of org. |
| 96 | -.44 | Market trends 5 to 10 years in the future. |
| 98 | -.24 | Employee attitude surveys. |
| 102 | -.23 | Long-range trends in management thinking. |
| 113 | -.20 | The long-range potentialities of the organization. |
| 117 | -.22 | Sizing up people. |
| 119 | -.18 | Responsibility of items having value of at least $100,000. |
| 128 | -.18 | Human relations practices. |
| 132 | .35 | Avoid identification with radical political elements. |
| 133 | .22 | Relaxed social occasions/avoid deviations from ac. behav. |
| 136 | .23 | Avoid public comment critical of good customer. |
| 137 | .24 | Avoid use of any kind of profanity |
| 154 | .23 | Refrain from public criticism of org.'s operations. |
| 155 | -.25 | Make decisions without consulting others. |
| 156 | -.31 | Signifies membership in top or middle management. |
| 157 | -.20 | Offers opportunity to utilize professional training. |
| 160 | -.25 | Assures incumbent will be noticed by top management. |
| 164 | .19 | Involves very frequent contact with public. |
| 167 | -.35 | Offers opportunity to gain experience in management. |
| 170 | -.23 | Allows me to make decisions not subject to review. |
| 171 | -.35 | Managing important part of the organization. |
| 173 | -.24 | Entitles me to my own secretary. |
| 179 | -.20 | Involves very few routine activities. |
| 181 | -.21 | Provides an office located in more desirable area. |
| 184 | -.17 | Working with other armed services or DOD. |

| Task Item Number | Correlation | Task Statement |
|---|---|---|
| | FACTOR XII | |
| 2 | -.29 | Forecast volume of work to be done in near future. |
| 36 | -.22 | Assist project representatives on large projects. |
| 45 | .18 | Plan the best use of available facilities. |
| 48 | -.18 | Consolidate estimates from various sources. |
| 52 | -.20 | Set goals for future performance. |
| 54 | -.24 | Brief others on contents of reports, letters, etc. |
| 118 | -.21 | Evaluating new ideas. |
| 125 | -.21 | Efficiency of operations. |
| 128 | -.18 | Human relations practices. |
| 130 | -.23 | Refrain from activities implying sympathy for unions. |
| 131 | -.24 | Be active in community affairs. |
| 132 | -.23 | Avoid identification with radical political elements. |
| 133 | -.28 | Relaxed occasions/avoid deviation from accept. behav. |
| 136 | -.29 | Avoid public comment critical of good customer. |
| 138 | -.20 | Avoid inadvertent disclosure of confidential info. |
| 141 | -.29 | Work w/persons with conflicting interests. |
| 143 | -.18 | Be capable of performing jobs of all subordinates. |
| 144 | -.20 | Work in outside activities to increase prestige of org. |
| 145 | -.22 | Gain respect of very important persons. |
| 147 | -.19 | Membership in 2 or more business organizations. |
| 149 | -.18 | Avoid publicity associated with personal difficulties. |
| 150 | -.18 | Refrain being seen at place of less than high repute. |
| 154 | -.34 | Refrain from public criticism of org.'s operations. |
| 156 | -.30 | Membership in top or middle management. |
| 160 | -.32 | Assures incumbent will be noticed by top management. |
| 165 | -.39 | Maintain highest respect of a few important persons. |
| 168 | -.21 | Involves "good will" of organization. |
| 169 | -.22 | Meet problems produced by non-self-controlled factors. |
| 171 | -.24 | Managing an important part of organization. |
| 180 | -.22 | Activities not closely supervised or controlled. |
| 181 | -.22 | Office located in more desirable area. |
| 182 | -.18 | Is considered a staff rather than line position. |
| 184 | -.18 | Working with other armed services or DOD. |
| | FACTOR XIII | |
| 8 | .20 | Visit each of the organization's major units at least once a year |
| 12 | -.22 | Make speeches at public gatherings. |
| 26 | -.19 | Make suggestions for improvement in organization's products/services. |
| 135 | .21 | Keep informed about the latest technical developments in a professional area. |
| 138 | .18 | Be very careful to avoid inadvertent disclosure of confidential information. |
| 168 | -.32 | Involves the "goodwill" of the organization. |

| Task Item Number | Correlation | Task Statement |
|---|---|---|
| 9 | -.24 | Write or dictate at least 25 letters per week. |
| 16 | -.27 | Approve transfer of personnel from one job to another. |
| 33 | -.19 | Review reports on inventory |
| 34 | -.31 | Analyze expense items involving a gross of at least $5,000. |
| 35 | -.36 | Furnish guidance to others in preparation of budgets. |
| 38 | -.28 | Review budgets for operations. |
| 39 | -.23 | Establish effective expense controls. |
| 43 | .22 | Devise procedures to reflect results of operation. |
| 46 | -.29 | Explain divergence between budget & actual expenditures. |
| 48 | -.20 | Consolidate estimates from various sources. |
| 53 | .27 | Serve as consultant in work w/branches of org. |
| 58 | .18 | Serve as consultant in interpretation of data. |
| 69 | -.19 | Define responsibility areas of supervisory personnel. |
| 74 | -.18 | Enforcement of rules & regulations. |
| 75 | -.22 | Control of inventories. |
| 81 | -.28 | Pricing organization products/services. |
| 108 | -.23 | Over- or under-staffing of jobs. |
| 120 | .18 | Redesign of products to reduce costs. |
| 126 | -.19 | Quarterly (or more frequent) reports on operations. |
| 127 | -.19 | Development of management trainees. |
| 130 | -.21 | Refrain from activities implying sympathy for unions. |
| 132 | -.29 | Avoid identification with radical political elements. |
| 134 | -.22 | Maintain membership in one or more clubs. |
| 135 | .29 | Keep up on technical developments in professional area. |
| 139 | .24 | Spend as much as 50 hours per week on the job. |
| 146 | .26 | Work with information of questionable reliability. |

Summary of the Canonical Correlation Analysis of the Finance Positions

After pondering the data for a factor in Table V-7, and the data for that same factor in Table V-8, one attempts to decipher the interpretation meaning to be given that factor. Unfortunately, the research team has proceeded through those steps and has found no particularly compelling interpretations they could assign to the factors. Hence, the factor interpretations given in Table V-9 are admittedly speculative. Probably the best and easiest next step that could be pursued in interpreting these factors would have position incumbents from the Washington, D.C. level work with members of the research team in reviewing the data presented in Tables V-7 and V-8. First-hand knowledge concerning the positions surveyed would help a great deal in interpreting the 13 factors.

The research team had hoped that at this point of the analysis it would have a set of factors with very clear interpretations which could have then been used in forming groupings of positions and in searching for career paths among the positions. This intended analysis would have used the locations of the 88 positions on the 13 factors as data input into the required additional analyses. Because of the researchers' discomfiture, however, a different tack was chosen for the next phase of the analysis. The method of analysis chosen for this next phase used the position incumbents' responses to the 188 items in the task inventory rather than using the positions' locations on a relatively few factors. The succeeding part of this section of the report describes the work (cluster analysis) conducted in the next step.

TABLE V-9

Tentative Appellations Assigned the 13 Useable Factors Found for the Finance Positions

| FACTOR NUMBER* | Title Assigned Factor |
|---|---|
| II | Planning - I |
| III | Staff vs. Line Responsibilities |
| IV | Representation of the Organization |
| V | Supervision |
| VI | Preservation of Organizational Assets |
| VII | Control - I |
| VIII | Concern with Organizational Reputation |
| IX | Supervision - Human Relations |
| X | Personal Demands |
| XI | Exercise of Broad Power and Authority |
| XII | Planning - II |
| XIII | Providing a Staff Service |
| XIV | Control - II |

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*Factor I was not included for a reason stated earlier in the report: All positions had very low relationships with it.

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## Cluster Analysis of Finance and Supply Positions

This portion of the report summarizes the use of a cluster analysis technique for partitioning a group of people into subsets or clusters of people having similar jobs. The task inventory questionnaire (see Appendix 1) was used for this analysis. The task inventory contains a number of questions relating to job characteristics, and the individual questionnaire items of necessity overlap to some degree in the sense that a number of them may be measuring quite similar atttibutes. Thus, the general technique is to obtain rather extensive data which may be less well structured than an ideal study would normally provide, and from this mass of data to extract whatever patterns "naturally" emerge.

The procedure thus begins with the administration of task inventories to a set of people. The questionnaire consists of 188 questions, the response to each of which is a numerical value between 0 and 7, inclusive. These questionnaires are then transcribed to punched cards and the results tabulated for each question and for each individual. From this raw questionnaire data, it is then possible to compute, using standard statistical techniques already available on many computers, a "similarity matrix". This matrix is a square array of numbers which has the property that the number in a given row and column of the array measures the degree of overall similarity between the person corresponding to the given row and another person corresponding to the given column. It thus gives a measure of similarity between any given pair of individuals who have responded to the questionnaire. This matrix contains the primary data used for the cluster analysis.

The cluster analysis technique attempts to partition or classify the entire group of respondents into subsets or clusters which are similar within themselves. This notion of similarity within a cluster refers back to the pairwise similarity measures provided by our matrix. Thus, if the clustering is sensible, a result of the cluster analysis should be a division of all the respondents into clusters with the property that within each cluster the individuals are more similar to one another than they are to individuals in other clusters. There are a number of techniques for performing such clustering; the method used in this research takes a similariy measure such as the one provided by the similarity matrix and provides a so-called hierarchical clustering scheme. Such a scheme, abbreviated as HCS, is a division of the initial population of individuals into clusters in several ways at once. The meaning of this is simply that if one were to impose a limit on similarity for a cluster with the intent that all pairs of people within each cluster should be at least as similar as the limit imposed, some cluster pattern could be achieved. If one were willing to relax the degree of similarity or closeness required to aggregate individuals into the same cluster, then one would expect that fewer but larger clusters could be obtained through either a separate clustering process or an aggregation of the previous smaller clusters. Thus, an HCS provides for a ladder or hierarchy of cluster patterns. At one end of the scheme all individuals fall into one large cluster. At the bottom of the scheme each individual forms a cluster consisting of himself alone. Between these two extremes lie cluster patterns of increasing degrees of fineness. The HCS is of such a nature that if at some "level of closeness" (i.e., height in the HCS "ladder") there is some number of clusters then at the next clustering "level" there will be exactly one less cluster. This may result from some "far-out" (i.e., not yet clustered) individual being incorporated into one of the previous clusters, or may result from two of the previous clusters coalescing into one larger cluster.

The HCS is obtained rather simply in practice by running the similarity matrix through a computer program called the HICLUST program. The output of HICLUST is in a form such that if one wishes to look at whatever clusters are "natural" if there are to be, say, eight clusters overall, then one inspects the section of HICLUST output corresponding to an eight cluster level of aggregation and notices which individuals are present in each of the eight clusters. On the other hand, if only four clusters are wanted, then the output of HICLUST can easily provide, at the four cluster level, which individuals are naturally present in each cluster. It is then the task of someone familiar with the original questionnaire data to examine the clustered individuals with a view toward determining which aspects of the questionnaires seem to lead to these individuals being included in the same cluster. In practice, this analysis can be carried out quite simply by determining an approximate number of clusters which is reasonable in view of the overall population. (For example, in a population of, say, 50 individuals, it might be foolish to look at a clustering pattern which provided thirty or forty clusters; in this case perhaps 5 or 6 clusters would be appropriate.) This decision is obviously a subjective one, and should therefore be carried out with the understanding that a reference back to the original data may indicate that somewhat more or fewer clusters may be more meaningful or desirable. Another aid to the choice of clustering level, or the number of clusters desired, is that there may tend to be natural jumps in the degree of similarity of people within a cluster as one goes from, say, 5 to 6 clusters.

An inspection of the results of the hierarchical clustering program is facilitated by the construction of a so-called "dendrogram", and dendrograms are used in the results sections to portray the findings.

For each set of occupations (Supply or Finance), two types of cluster analyses were conducted. The first type of clustering emphasized forming groupings of positions having high within-cluster similarity. Operationally, an incumbent in a position within a cluster formed in this way should be able to transfer successfully to the other positions in that cluster more easily than to positions in other clusters. This method can therefore be said to focus on ease of transfer.

The second cluster analysis method used with both sets of data focused on finding linkage among positions, and forming clusters of linked positions. The second cluster analysis method can therefore be viewed as identifying career paths in the sets of Supply or Finance occupations.

## Supply Positions Cluster Analysis Results

The results of the two types of cluster analyses of the Supply positions will be presented in this section. The results discussed first come from the cluster analysis method which attempts to develop groupings of jobs such that a position incumbent should have a high probability of successfully transferring among the positions within the same cluster. The second set of results which will be discussed addresses the findings obtained from the cluster analysis method designed to determine career paths among the Supply positions.

### Clusters Emphasizing Ease of Transfer

The question of classifying positions so that vacancies within a cluster can be filled by another individual in the same cluster was approached as follows:

From the set of 89 Washington, D.C. and 57 San Diego professional personnel (Supply Center) who responded to the 188 item task inventory questionnaire, there were selected 100 at random with 40 of these from the Washington list and 60 from the San Diego list. For these, the correlation matrix (correlations among 100 positions; computed over the 188 task items) was input to the hierarchical clustering program. The resulting dendrogram associated with this cluster analysis method appears in Figure V-2. A nine-cluster solution was chosen as producing some reasonably large (in terms of number of positions in them) clusters which have an acceptable mix of Washington and San Diego positions. The cluster lists and location of the positions appear in Table V-10.

For the five largest clusters, the task inventory cover sheet data were recovered and ranked by GS level. These appear in Table V-11. The three clusters that comingle Washington and San Diego personnel (Clusters 6, 7, and 9) exhibit a quite noticable correlation between GS level and location.

TABLE V-10

Nine Clusters Obtained from the Supply Positions*

| CLUSTER I | | CLUSTER II | | CLUSTER III | | CLUSTER IV | | CLUSTER V | |
|---|---|---|---|---|---|---|---|---|---|
| Position | Location | Position | Location | Position | Location | Position | Location | Position | Location |
| 28 | SD | 04 | SD | 05 | SD | 02 | SD | 52 | SD |
| 09 | SD | 39 | SD | 27 | SD | 16 | SD | 31 | SD |
| 41 | SD | 32 | SD | 10 | SD | 30 | SD | 55 | SD |
| 42 | SD | 54 | SD | 36 | SD | | | 13 | SD |
| | | 60 | SD | 37 | SD | | | 79 | DC |
| | | | | 12 | SD | | | 11 | SD |
| | | | | 18 | SD | | | 68 | DC |
| | | | | 38 | SD | | | 24 | SD |
| | | | | 33 | SD | | | 25 | SD |
| | | | | 22 | SD | | | 26 | SD |
| | | | | 20 | SD | | | 29 | SD |
| | | | | 46 | SD | | | 07 | SD |
| | | | | 47 | SD | | | 56 | SD |
| | | | | 58 | SD | | | 21 | SD |
| | | | | 14 | SD | | | 88 | DC |
| | | | | 34 | SD | | | 81 | DC |
| | | | | 15 | SD | | | 91 | DC |
| | | | | 64 | SD | | | 65 | DC |
| | | | | | | | | 93 | DC |
| | | | | | | | | 95 | DC |

| CLUSTER VI | | CLUSTER VII | | CLUSTER VIII | | CLUSTER IX | | CLUSTER IX (Cont.) | |
|---|---|---|---|---|---|---|---|---|---|
| Position | Location | Position | Location | Position | Location | Position | Location | Position | Location |
| 17 | SD | 63 | DC | 73 | DC | 43 | SD | 87 | DC |
| 23 | SD | 78 | DC | 74 | DC | 57 | SD | 69 | DC |
| 35 | SD | 82 | DC | 70 | DC | 08 | SD | 89 | DC |
| | | 03 | SD | 80 | DC | 40 | SD | 100 | DC |
| | | 84 | DC | 44 | SD | 01 | SD | 06 | SD |
| | | 62 | DC | 77 | DC | 53 | SD | 83 | DC |
| | | 61 | DC | 90 | DC | 45 | SD | 48 | SD |
| | | 97 | DC | 94 | DC | 50 | SD | 72 | DC |
| | | 19 | SD | 86 | DC | 66 | DC | 67 | DC |
| | | 59 | SD | 92 | DC | 71 | DC | 75 | DC |
| | | 98 | DC | 96 | DC | | | | |
| | | 49 | SD | | | | | | |
| | | 51 | SD | | | | | | |
| | | 76 | DC | | | | | | |
| | | 85 | DC | | | | | | |
| | | 99 | DC | | | | | | |

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*Position titles are listed in Appendix 2.

TABLE V-11

Descriptive Data Concerning the Five
Largest Clusters of Supply Positions

| GS LEVEL | LOCATION | JOB TITLE |
|---|---|---|
| | CLUSTER III | |
| 13 | DC | Editor |
| 09 | SD | Contract Administrator, Head Supervisory |
| 09 | SD | General Equipment Specialist, Supervisory |
| 09 | SD | Budget Analyst |
| 09 | SD | Marine Cargo Specialist |
| 09 | SD | Marine Equipment Specialist |
| 07 | SD | Procurement Assistant |
| 07 | SD | Procurement Assistant |
| 07 | SD | Procurement Assistant |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Inventory Management Specialist |
| 07 | SD | Property Disposal Assistant |
| 07 | SD | General Equipment Specialist |
| 07 | SD | General Equipment Specialist |
| | CLUSTER V | |
| 14 | DC | Supply Management Specialist |
| 14 | DC | Supply Management Specialist |
| 13 | DC | Supply Management Specialist |
| 13 | DC | Supply Management Specialist |
| 13 | DC | General Supply Officer |
| 13 | DC | Computer Systems Analyst |
| 13 | DC | Supply Systems Analyst |
| 13 | DC | Program Manager |
| 11 | SD | Computer Specialist |
| 11 | SD | Computer Specialist |
| 11 | SD | Computer Specialist |
| 11 | SD | Computer Specialist |
| 11 | SD | Management Analyst |
| 10 | SD | General Equipment Specialist, Head Supervisory |
| 09 | SD | Electrical Equipment Specialist |
| 09 | SD | Ord. Equipment Specialist |
| 09 | SD | Machine Equipment Specialist |
| 09 | SD | Computer Systems Analyst |
| 09 | SD | Computer Specialist |
| 07 | SD | Inventory Management Specialist |

| GS LEVEL | LOCATION | JOB TITLE |
|---|---|---|
| | | CLUSTER VII |
| 17 | DC | Technical Advisor to Commander |
| 15 | DC | Director, Program Analysis Division |
| 15 | DC | Director, Mat. Tech. Programs Division |
| 15 | DC | Planning & Policy Branch, Acting Director |
| 14 | DC | Supply Management Specialist |
| 14 | DC | Management Analyst |
| 14 | DC | Resale Program Specialist |
| 14 | DC | Storage & Packing Branch, Head |
| 14 | DC | Budget Form. Branch, Head |
| 13 | SD | Personnel Officer |
| 13 | DC | Educational Specialist |
| 12 | SD | Labor Management Relations Specialist, Supervisory |
| 12 | DC | Fiscal Accounting Assistant |
| 12 | SD | Personnel Staffing Specialist, Supervisory |
| 11 | SD | Personnel Staffing Specialist |
| 09 | SD | Inventory Management Specialist |
| | | CLUSTER VIII |
| 15 | DC | Asst. Dir., Program Appraisal & Mgmt. Info. Sys. Br. |
| 15 | DC | Stock Point Systems Branch Head |
| 15 | DC | Printing Officer |
| 15 | DC | Transportation Officer |
| 14 | DC | Program Analysis Officer |
| 15 | DC | Program Analysis Officer |
| 13 | DC | Program Analyst |
| 13 | DC | Storage Management Specialist |
| 13 | DC | Computer Equipment Analyst |
| 12 | DC | Supply Management Analyst |
| 11 | DC | Activity Representative |
| 11 | SD | Program Analyst |
| | | CLUSTER IX |
| 15 | DC | Internal Logical Staff Dept. Director |
| 15 | DC | Assistant Deputy Commander Procurement Management |
| 15 | DC | Deputy Commander Admin Mgmt Analysis Officer |
| 14 | DC | Supply Management Officer |
| 14 | DC | Director, Procurement Policy & Planning Division |
| 14 | DC | Head, Mutual Security Program Branch |
| 14 | DC | Branch Head |
| 14 | DC | Branch Head |
| 14 | DC | Program Analyst |
| 13 | DC | Program Analyst |
| 13 | SD | Supervisory Computer Specialist |
| 12 | SD | Financial Manager |
| 12 | SD | Property Disposal Officer |
| 11 | SD | Head Supervisory Computer Specialist |
| 11 | SD | Supervisory General Equipment Specialist |
| 10 | SD | Property Disposal Specialist Supervisory |
| 09 | SD | Head Supervisory Procurement Agent |

| GS LEVEL | LOCATION | JOB TITLE |
|---|---|---|
| 09 | SD | Summer Aid (Accountant) |
| 09 | SD | Storage Management Specialist |
| 09 | SD | Supervisory Supply Technician |

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Qualitative descriptions of the various clusters can be obtained by considering the responses to the task inventory items averaged for each cluster. These means can be compared to the overall task item means to identify those items that discriminate the positions in an individual cluster from all positions not in that cluster. This produces two sets of items for each cluster. The first describes what activities are common among the positions in the cluster, and the second describes tasks people in these positions report as being as somewhat uncommon in their positions. These sets of items have been identified for the three clusters that mix Washington and San Diego positions. The results follow.

The positions in Cluster V are concerned with the products and services of the activity and are not concerned with merchandising, budgeting, image in the community, employee benefits, or labor relations. Sitting at a desk at least 20 hours per week is the most distinctive item. Their activities directly affect the quality of the organization's products/services, pressure is high, trouble-shooting and meeting problems caused by factors beyond their control are prominent. They have opportunity to utilize their professional training, are involved in activities that are not closely supervised, and involved in dealing with other Navy commands. Their GS range is a bit narrow (essentially 9-14). They are distinct from Clusters VII and IX in that they have line rather than staff positions and do little personnel management.

Membership in Cluster VII signifies membership in top or middle management and is considered a staff rather than line position. The GS range is 11-17 (essentially). The people are involved with dealing with persons (within the activity) of substantially higher rank, expend at least 10 hours per week in direct association with supervisors, and advise junior personnel on technical matters. They receive opportunity to utilize their professional training, gain experience in management, and value getting to know each person under them. People in this cluster are not involved with engineering standards, cost controls, new products, or sales quotas. They have little first-hand contact with customers, and their activities seem to be controlled or supervised. They are not responsible for high dollar value items, an automobile is not provided for them, and their jobs do not carry an expense allowance.

Personnel in Cluster IX are involved in appraising the results of operations, making suggestions for improvement in products/services, setting goals for future performance, making assignments to subordinates, and are concerned with the efficiency of operations. They are involved in dealing with other Navy commands, utilize their professional training, trouble-shoot special problems, and must be careful to avoid the inadvertent disclosure of confidential information. They are not concerned with labor relations or community projects. The GS range is 9-15, and sitting at a desk at least 20 hours per week is <u>not</u> regarded as a prominent aspect of their positions.

FIGURE V-2

NSC TRANSFERABILITY

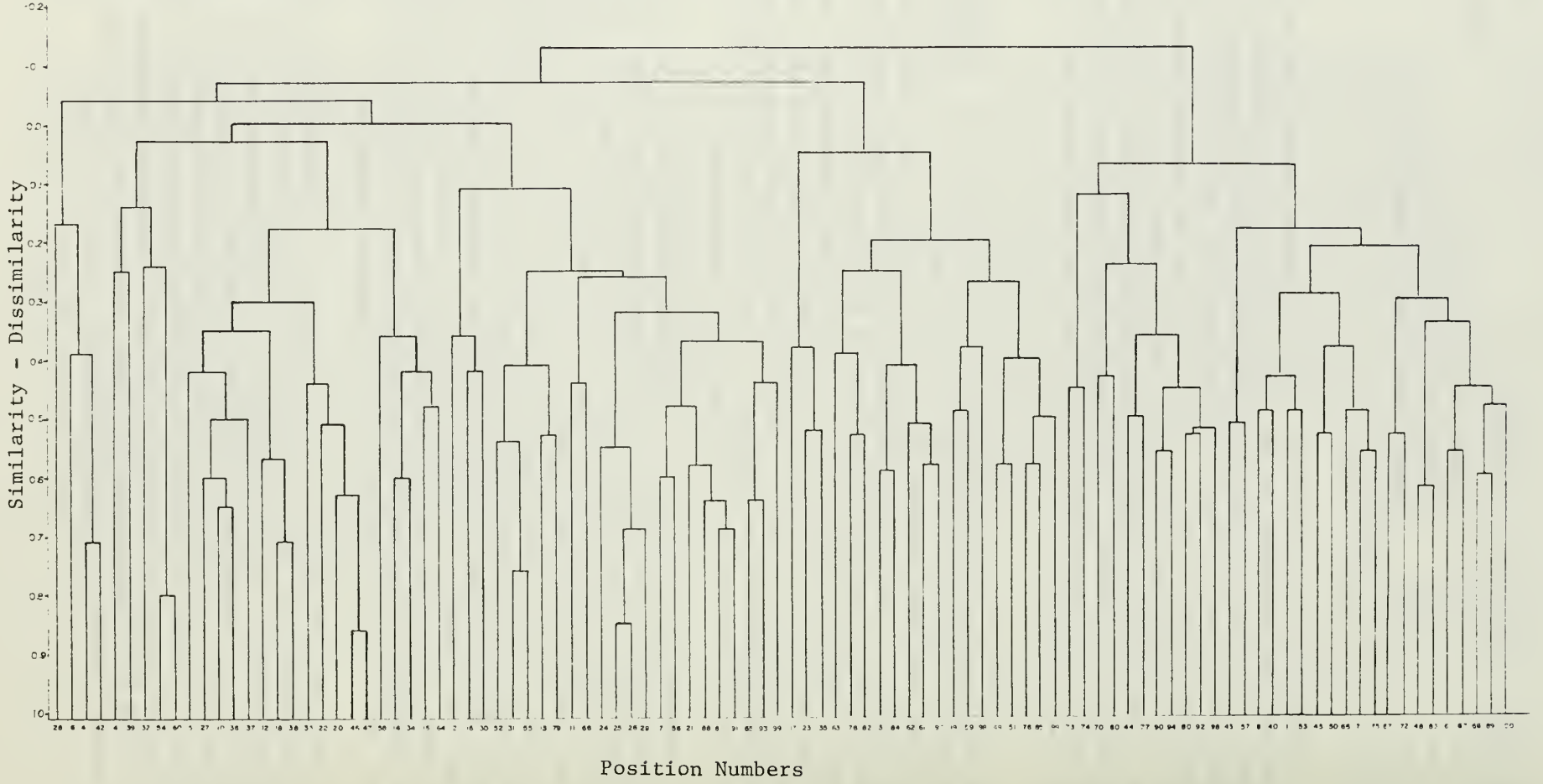


FIGURE V-3

NSC Career Ladder


Position Numbers

In general, clustering of this type is about as well as can be done using the instrument (188 item task inventory) at hand. In a specific case of, say, filling a Washington vacancy with personnel from San Diego, one could rank the individuals who are both in the cluster and close to that position by looking directly at the dendrogram.

The personnel involved in this example were all employees of Supply commands, and the instrument used was probably too general to give truly sharp separations of personnel within Supply occupations. Thus, it is possible that a more specific instrument could do a better job.

Cluster Analysis Results Emphasizing Career Paths (Supply Occupations)

Identification of career paths is similar to, but different from, the question of interchangeability of personnel. With the clusters developed in the previous section (see Table V-11), there is a range of GS levels, and the jobs associated with advancing levels are suggestive of career paths. If the results presented in Table V-11 were used to identify career paths, one would expect the following:

For Cluster V, an equipment specialist or computer specialist might aspire to become a supply management specialist. For Cluster VII we see managers and specialists becoming directors. For Cluster IX we see lower level supervisor becoming directors, deputies, and heads. Such interpretations should be taken with a grain of salt in the light of the "Washington bias" in GS levels for these three clusters. The other two clusters (III and VIII) in Table 10 do not mix Washington and San Diego personnel. Cluster III is very narrowly ranged in GS level and hence no career path is indicated. Cluster VIII however does suggest a route for certain storage, computer and supply analysts to be GS 15's in Washington in some special managerial positions.

If one thinks of a career path in terms of a series of links through which the aspirant grows and advances as he learns to do more and more important things, then the method of clustering should be more closely aligned with this concept.

The second cluster analysis method provided results facilitating the identification of career paths in accord with the concept of progressive linkages among jobs. The dendrogram portraying these career paths is shown in Figure V-3. The reader should note the distinctive one-by-one tacking-on of individual positions to existing clusters of positions.

Clusters A through G are identified on the dendrogram in Figure V-3. Cluster A contains the most similar personnel of these clusters and is essentially Cluster III identified in the previous cluster analysis. Cluster A, however, does not seem to yield a career path. The four positions in Cluster B tack on conveniently to Cluster A, but at both ends of the GS scale; no logical thread among the positions is apparent.

Cluster C does better, it shows computer and management analysts growing into supply management specialists and branch heads. Also Clusters A and B merge fairly quickly with Cluster C. Note too that Cluster E merely includes two people with the same job.

Far down the similarity scale in Figure V-3 we have the merging of Clusters E, F, and G. This lengthy path culminates with some moderately high level analyst and editing positions.

The Monterey research team feels that a dialogue among members of the research team and Washington-level position incumbents would facilitate the interpretations of the results of the cluster analysis procedure. The research team also believes that a better (more specific) task inventory could now be developed which could be used to highlight the linkages among jobs in the Supply occupations.

## Finance Positions Cluster Analysis Results

The results from the two types of cluster analyses of the Finance positions will be presented on the following pages. To review briefly, cluster analysis operates on the similarities among the positions being studied. Two types of cluster analysis methods were used with the data from the positions. The first method of clustering develops clusters that are very similar to one another, while the second method develops linkage among the positions studied such that positions at different GS grade levels are linked to one another.

## Clusters Emphasizing Ease of Transfer

The set of responses from 49 NRFC positions at San Diego and the set of responses from 48 NAVCOMPT positions at Washington, D.C. to the 188 item task inventory were used in both types of cluster analyses conducted with the data from the Finance occupations (A sample of the task inventory is included in Appendix 9). The intercorrelation matrix (correlation among the 97 positions; computed over the 188 task items) was used as the input to the hierarchical cluster analysis. The dendrogram developed from this analysis is presented in Figure V-4. An eleven-cluster solution was chosen because most of these clusters included a reasonable number of positions from both San Diego and Washington. The data concerning these 11 clusters are presented in Table V-12.

TABLE V-12

11 Clusters Obtained from the Finance Positions

| CLUSTER I | | CLUSTER II | | CLUSTER III | | CLUSTER IV | | CLUSTER V | |
|---|---|---|---|---|---|---|---|---|---|
| Position | Location | Position | Location | Position | Location | Position | Location | Position | Location |
| 03 | SD | 10 | SD | 70 | DC | 34 | SD | 27 | SD |
| 04 | SD | 11 | SD | | | 69 | DC | 32 | SD |
| 06 | SD | 20 | SD | | | 72 | DC | | |
| 26 | SD | 21 | SD | | | 92 | DC | | |
| 28 | SD | 23 | SD | | | | | | |
| 29 | SD | 48 | SD | | | | | | |
| 31 | SD | 49 | SD | | | | | | |
| 40 | SD | | | | | | | | |
| 43 | SD | | | | | | | | |
| 44 | SD | | | | | | | | |

| CLUSTER I (Cont.) | |
|---|---|
| Position | Location |
| 47 | SD |
| 65 | DC |
| 76 | DC |
| 81 | DC |
| 91 | DC |

| CLUSTER VI | |
|---|---|
| Position | Location |
| 42 | SD |

| CLUSTER VII | |
|---|---|
| Position | Location |
| 13 | SD |
| 14 | SD |
| 24 | SD |
| 39 | SD |
| 46 | SD |
| 80 | DC |
| 83 | DC |

| CLUSTER VIII | |
|---|---|
| Position | Location |
| 01 | SD |
| 02 | SD |
| 08 | SD |
| 19 | SD |
| 33 | SD |
| 36 | SD |
| 37 | SD |
| 41 | SD |
| 75 | DC |
| 82 | DC |

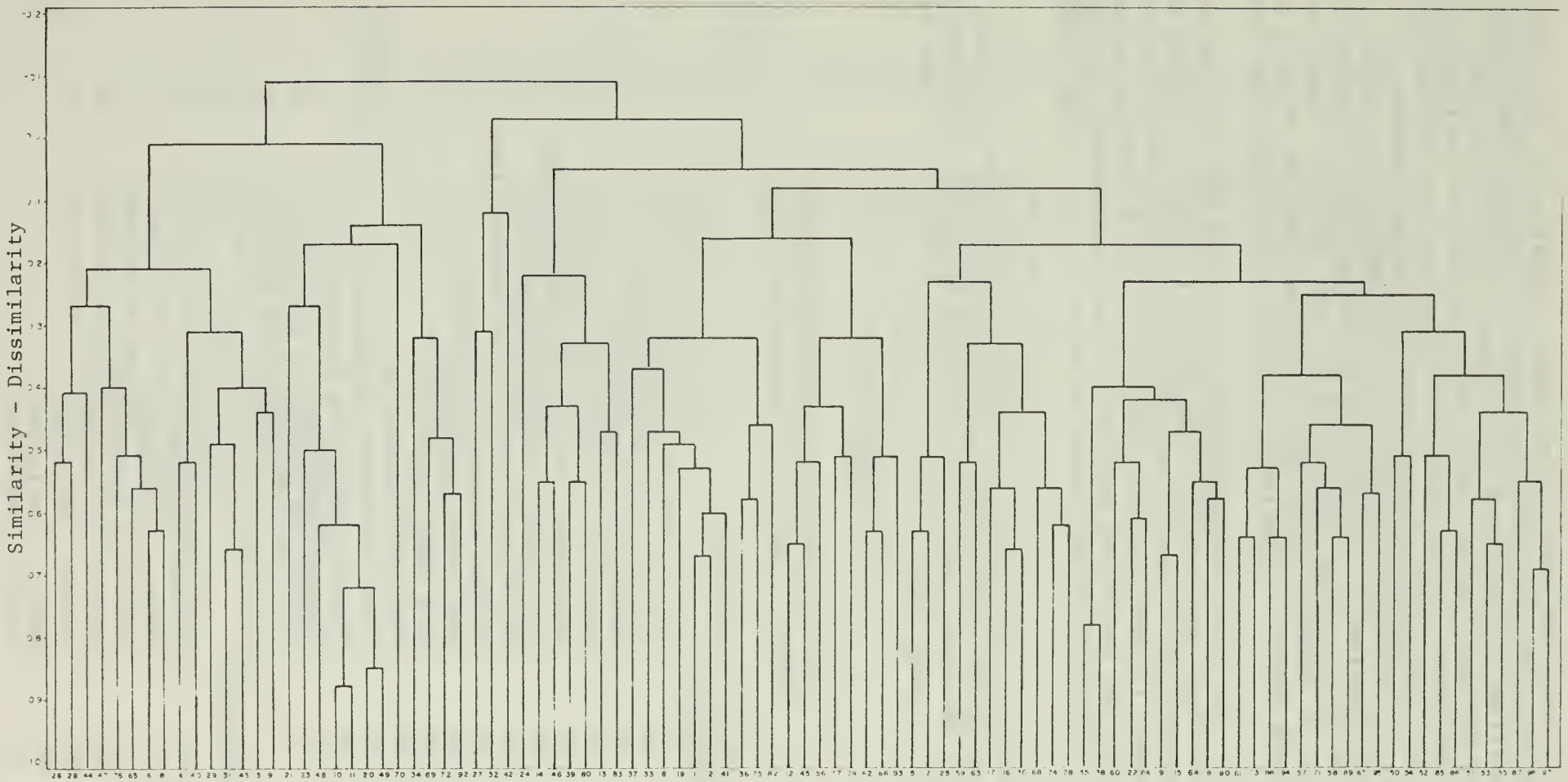
| CLUSTER IX | |
|---|---|
| Position | Location |
| 12 | SD |
| 45 | SD |
| 56 | DC |
| 62 | DC |
| 66 | DC |
| 77 | DC |
| 79 | DC |
| 93 | DC |

| CLUSTER X | |
|---|---|
| Position | Location |
| 05 | SD |
| 07 | SD |
| 16 | SD |
| 17 | SD |
| 25 | SD |
| 30 | SD |
| 59 | DC |
| 63 | DC |
| 68 | DC |
| 74 | DC |
| 78 | DC |

| CLUSTER XI | |
|---|---|
| Position | Location |
| 09 | SD |
| 15 | SD |
| 17 | SD |
| 22 | SD |
| 35 | SD |
| 38 | SD |
| 50 | DC |
| 51 | DC |
| 52 | DC |
| 53 | DC |
| 54 | DC |
| 55 | DC |
| 57 | DC |
| 58 | DC |
| 60 | DC |
| 61 | DC |
| 64 | DC |
| 67 | DC |
| 71 | DC |
| 73 | DC |
| 84 | DC |
| 85 | DC |
| 86 | DC |
| 87 | DC |
| 88 | DC |
| 89 | DC |
| 90 | DC |
| 94 | DC |
| 95 | DC |
| 96 | DC |
| 97 | DC |

FIGURE V-4

NRFC TRANSFERABILITY



As can be seen from examining the data in Table V-12, the clusters varied from having one to fifteen positions included in them. Clusters III (position 70), IV (positions 34, 69, 72, & 92), V (positions 27 & 32) and VI (position 42) had very few positions in them, indicating that the position or positions in any of these four clusters were quite different from the positions in other clusters. Position 42 (Supervisory Fiscal Accounting Assistant) and position 70 (Military Pay Regulations Specialist) each remained in clusters by themselves, while positions 27 (Supervisory Accountant) and 32 (Supervisory Fiscal Accounting Officer) cleaved together in the same cluster. These four positions can therefore be viewed as being quite different from the other 93 positions in the analysis when the comparisons are based on the tasks they require.

Cluster II had seven positions in it, but all of the positions were from the NRFC, San Diego, and none were from Washington, D.C. Although this cluster of positions would be useful in guiding individuals among the seven positions in Cluster II, this cluster is of little help in showing relationships among San Diego and Washington positions, other than showing that the set of positions in Cluster II do not appear to be very similar to any Washington positions.

Clusters I, VII, VIII, IX, X, and XI all included positions from both San Diego and Washington, and included enough data to justify additional analysis. The GS levels, locations, and job titles of the positions in these six clusters are presented in Table V-13.

TABLE V-13

Descriptive Data Concerning the Six
Largest Clusters of Finance Positions

| GS Level | Location | Job Title |
|---|---|---|
| | CLUSTER I | |
| 07 | SD | Office Services Supervisor |
| 06 | SD | Fiscal Accounting Supervisor |
| 07 | SD | Supervisory Computer Aide |
| 07 | SD | Supervisory Accounting Technician |
| 08 | SD | Supervisory Accounts Maintenance Clerk |
| 07 | SD | Supervisory Accounting Technician |
| 07 | SD | Supervisory Accounts Maintenance Clerk |
| 07 | SD | Voucher Examiner Supervisor |
| 05 | SD | Card Punch Supervisor |
| 04 | SD | Card Punch Supervisor |
| 09 | SD | Disbursing Specialist |
| 11 | DC | Fiscal Accountant Assistant |
| 11 | DC | Computer Operations Supervisor |
| 13 | DC | Computer Specialist |
| 11 | DC | Supervisory Accounting Assistant |
| | CLUSTER VII | |
| 07 | SD | Computer Programmer |
| 09 | SD | Computer Programmer |
| 09 | SD | Disbursing Specialist |
| 11 | SD | Computer Specialist |
| 09 | SD | Computer Specialist |
| 11 | DC | Computer Specialist |
| 11 | DC | Computer Specialist |

| GS Level | Location | Job Title |
|---|---|---|
| | CLUSTER VIII | |
| 05 | SD | Voucher Examiner, Supervisory Typing |
| 07 | SD | Voucher Examiner Supervisor |
| 05 | SD | Supervisory Mail/File Clerk |
| 09 | SD | Supervisory Accounts Maintenance Clerk |
| 06 | SD | Military Pay Supervisor |
| 07 | SD | Supervisory Military Pay Clerk |
| 10 | SD | Military Pay Supervisor |
| 06 | SD | Voucher Examiner Supervisor |
| 12 | DC | Computer Specialist |
| 13 | DC | Computer Specialist |
| | CLUSTER IX | |
| 11 | SD | Computer Specialist |
| 11 | SD | Computer Specialist |
| 15 | DC | Branch Head, Nonapp. Funds & Spec. Systems |
| 13 | DC | Program Analyst |
| 12 | DC | Fiscal Accountant |
| 14 | DC | Director, ADP Operations Division |
| ? | DC | Digital Computer Systems Admin |
| ? | DC | ? |
| 14 | DC | Program Analyst |
| | CLUSTER X | |
| 11 | SD | Computer Specialist |
| 09 | SD | Computer Specialist |
| 11 | SD | Management Analyst |
| 11 | SD | Computer Specialist |
| 08 | SD | Accounting Technician |
| 11 | SD | Management Analyst |
| 12 | DC | Systems Accountant |
| 12 | DC | Systems Accountant |
| ? | DC | ? |
| 13 | DC | Computer Specialist |
| 12 | DC | Computer Specialist |
| | CLUSTER XI | |
| 09 | SD | Voucher Examiner Supervisor |
| 12 | SD | Supervisory Disbursing Specialist |
| 11 | SD | Computer Specialist |
| 13 | SD | Digital Computer Systems Administrator |
| 10 | SD | Military Pay Supervisor |
| 12 | SD | Supervisory Fiscal Accounting Officer |
| 14 | DC | Program Manager |
| 12 | DC | Management Analyst |
| 12 | DC | Program Analyst |
| 13 | DC | Management Analyst |

| GS Level | Location | Job Title |
|---|---|---|
| 14 | DC | Budget Officer |
| 13 | DC | Program Manager |
| 14 | DC | Systems Accountant |
| 13 | DC | Systems Accountant |
| 15 | DC | Director, Functional Systems Division |
| 14 | DC | Supervisory Systems Accountant |
| 13 | DC | Systems Accountant |
| 11 | DC | Military Pay Regulations Specialist |
| 11 | DC | Military Pay Regulations Specialist |
| 12 | DC | Military Pay Regulations Specialist |
| 15 | DC | Deputy Director, Financial Analysis Div. |
| 14 | DC | Systems Accountant |
| 14 | DC | Program Analyst |
| 11 | DC | Operations Research Analyst |
| 14 | DC | Program Analyst |
| 14 | DC | Program Analyst |
| 12 | DC | Acting Head Secretariat Accounts Branch |
| 15 | DC | Director Program/Budget Systems Ops. |
| 14 | DC | Data Control Branch Head |
| 11 | DC | Program Analyst |
| 13 | DC | Program Analyst |

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A given cluster of positions presented in Table V-13 can be described by examining the responses to the task inventory made by the incumbents to those positions. In particular, the mean response to each of the 188 task items can be computed for the positions in a cluster. These cluster means can then be compared with the mean responses for all of the positions not in the cluster in order to identify task items differentiating the positions in a cluster from all of the positions not in the cluster. Two sets of task items are generated in this way for each cluster: one set of items describing those tasks relatively important in positions in that cluster; another set of items describing the tasks incumbents in these positions tend not to do -- at least when compared with positions not in the cluster. The following descriptions of the clusters were developed by examining these sets of items for each of the six large clusters of Finance positions.

The positions in Cluster I (see Table V-13) are distinguished from all other positions by tasks that are less important than they are to positions not in the cluster. Position incumbents in Cluster I had significantly lower average responses on items such as*:

Item 139: Spend as much as 50 hours per week on the job.
Item 187: Involves dealing with other than DOD representatives of the executive branch of government
Item 146: Work with information of questionable reliability.
Item 116: Concern with pilot projects.

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*The entire task inventory is in Appendix 1.

Item 40: Supervise a team of specialists.
Item 61: Preparation of an annual budget of at least $200,000.
Item 42: Analyze operating performance reports.
Item 120: Redesign of products to reduce costs.

On none of the 188 task items did the cluster's mean response exceed that of the positions not in the cluster, indicating that none of the tasks was more a part of positions in the clusters than it was a part of positions not in the cluster.

On a number of task items, the mean item response for Cluster VII was significantly lower than that of the positions not in the cluster, while in no case did the cluster's mean response exceed that of the positions not in the cluster. The incumbents in Cluster VII had significantly lower average responses on the following task items:

Item 181: Provides an office that is located in one of the more desirable areas.
Item 53: Serve as a consultant in work with branches of the organization.
Item 23: Be involved in establishing objectives for the organization.
Item 126: Preparation of quarterly (or more frequent) reports on operations.
Item 2: Forecast the volume of work to be done in the near future.
Item 60: Concern with long-range objectives of the organization.
Item 49: Evaluate records of production.
Item 7: Submit regular reports concerning accomplishment of groups of personnel.
Item 71: Forecasting future trends or events.
Item 42: Analyze operating performance reports.
Item 20: Make analyses of statistical reports.
Item 1: Plan the analysis of quantitative data.
Item 156: Signifies membership in top or middle management.
Item 47: Make use of staff people.
Item 102: Long-range trends in management thinking.
Item 113: The long-range potentialities of the organization.
Item 11: Edit drafts of special reports.
Item 6: Make assignments of jobs to subordinates.
Item 48: Consolidate estimates from various sources.
Item 41: Represent the CO outside the organization.
Item 4: Schedule work so that it flows evenly and steadily.
Item 165: Involves maintaining the highest respect of a few important persons.
Item 54: Brief others on the contents of reports, letters, etc.
Item 187: Involves dealing with other than DOD representatives of the executive branch of government.
Item 36: Assist project representatives on large projects.

In contrast to Clusters I and VII, Cluster VIII did have several task item means exceeding the corresponding means of the positions not in the cluster. These task items were:

Item 17: Keep detailed and accurate records.
Item 19: Advise junior persons on technical matters related to the operation.
Item 4: Schedule work so that it flows evenly and steadily.

Cluster VIII had significantly lower mean responses on the following items:

Item 41: Represent the CO outside the organization.
Item 120: Redesign of products to reduce costs.
Item 93: Product specifications.
Item 38: Review budgets for operations.
Item 76: Improvements in product design.
Item 46: Explain divergence between budget and actual expenditure.

On five of the task items, the positions in Cluster IX had mean responses significantly exceeding those of the positions not in the cluster (indicating tasks more important in these positions than they were in other postiions). These items were:

Item 116: Concern with pilot projects.
Item 54: Brief others on the contents of reports, letters, etc.
Item 71: Forecasting future trends or events.
Item 36: Assist project representatives on large projects.
Item 60: Long-range objectives of the organization.

The mean task item response data for Clusters X and XI indicate that these clusters had almost no mean responsesthat were significantly different from the mean responses from the positions not in these clusters. Although Clusters X and XI are holistically different from one another, and from the positions in other clusters, both Clusters X and XI can apparently be thought of as representing the centrality of the tasks performed in Finance positions.

Cluster X positions were significantly lower than other positions on two task items:

Item 83: Proper handling of other than personal monies.
Item 67: Selection of new personnel.

Cluster XI positions had a mean response lower than that of other positions on only one task item, number 22: "Have a public speaking engagement at least as often as once every six months".

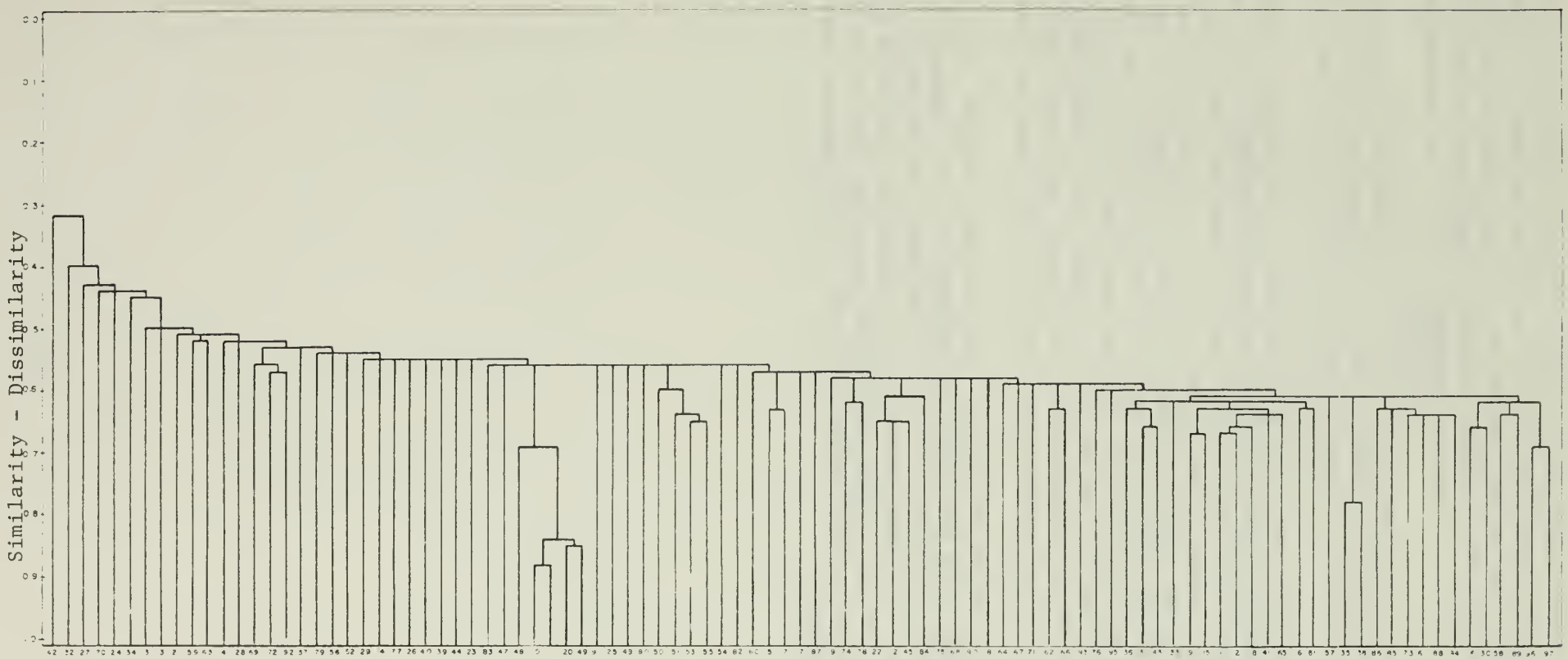
Cluster Analysis Results Emphasizing Career Paths

The clusters described in the preceeding section were formed in a way maximizing interchangeability among positions within the same cluster. The results to be described now, however, result from a cluster analysis method which focuses on progressive linkages among positions. These linkages among positions are analogous to a career path which consists of a series of epochs through which an individual develops and advances to greater reponsibilities. The dendrogram portraying the results of this cluster analysis method is shown in Figure V-5.

Positions 16 and 30, both of which were GS-11 Management Analyst billets at NRFC San Diego, link with positions 58 (GS-13 Systems Accountant) and with three Program Analyst billets at Washington (position numbers 89, 96, and 97). The Program Analyst positions being at the GS-11, 13, and 14 levels.

FIGURE V-5

NRFC CAREER LADDERS



Position 6, a GS-7 Supervisory Computer Aide in San Diego, links to position 81, a GS-13 Computer Specialist, rather early in the results shown in Figure V-5. At about the same point in the cluster analysis, positions 41 and 65 show a linkage. Position 41 is a GS-6 Voucher Examiner Supervisor at NRFC San Diego, and position 65 is a Fiscal Accountant Assistant, GS-11, in Washington.

Three NRFC San Diego positions: numbers 22 (Digital Computer Systems Administrator), 12 (Computer Specialist), and 45 (Computer Specialist) linked position 84, GS-15 Deputy Director, Financial Analysis Division, in Washington.

Beyond the linkages described in the several preceeding paragraphs; i.e., as you go further from the axis on which the position numbers are placed on the dendrogram in Figure V-5, the clusters rapidly come to have large numbers of positions in them. Rather large clusters form first and then merge into very large clusters. If the reader looks at the axis in Figure V-5 which has the position numbers on it; starts at the position numbered 97 and then moves up that axis, it can be seen that all of the positions along the axis from position 97 through 36 tend to link with one another into a clustering containing 28 positions. The other large clusters of linked jobs were formed later in the analysis -- after the cluster enveloping 28 positions was formed.

To sum up, this method of cluster analysis has provided some leads as to career paths leading from San Diego to Washington. The research group feels the cluster analysis methodology used in this study is one which should be considered for use if further career path studies are conducted by NAVCOMPT, but that the task inventory used to provide the grist for the analysis mill should be tailored so as to illuminate better the differences among professional jobs in NAVCOMPT.

# APPENDIX 1

## TASK INVENTORY

POSITION DESCRIPTION QUESTIONNAIRE
IIND-NSC 12280/29 (3-73) 200

Name: _____

Position: _____

Code: _____

A. Purpose.
The purpose of this questionnaire is to determine the basic characteristics of middle and senior level civil service positions in several occupational areas of the Naval Material Command. This basic information will later be used to develop "career ladders" for the jobs involved.

B. Use of the questionnaire.
The questionnaire is to be completed by the incumbents of civil service professional series positions at field activities and at Washington, D.C. A similar questionnaire has already been proven useful in describing such jobs in civilian industrial organizations.

C. Position identification.

1. Official title and civil service grade of the person to whom you report _____

2. Number of people you supervise:
Directly _____ (please specify the number)
Indirectly* _____ (please specify the number)
*Subordinates in your chain of command who are under those you directly supervise.

3. How long have you occupied this position? _____ years and _____ months

D. Completion of the questionnaire.
Your cooperation in completing and returning this survey is an essential part of an official study sponsored by the Naval Material Command. You are asked to complete this questionnaire so as to give the best description you can of your position. There are 188 items for you to consider, but you should be able to complete the questionnaire within an hour. Do not be disturbed if you find that many of the items do not apply to your position. This questionnaire is used to describe jobs from GS-5 to GS-16 in the professional series, and so must include items that apply to any of the jobs being surveyed.

Upon completion of the questionnaire, return it by guard mail to: Postgraduate School Project, Code 20A.

All questionnaires should be returned by _____.

The items are organized into five sections: Section I concerns position activities, Section II concerns general responsibilities, Section III covers position demands and restrictions, Section IV contains items about miscellaneous position characteristics, and Section V asks you to supply other information you feel is relevant.

As you consider each item you are to proceed in two steps: First, consider whether the item applies to or is true for your position. If your answer is No then the item is definitely not part of your position. Second, and only if the item does apply or is true for your position, you must then decide how significant a part of your position it represents. In making this decision you are to consider and weigh its importance, frequency of occurence, relevance, or any other factor which you think determines to what extent the item is part of the position. You are to allot a value between 0 and 7 to each item according to the following schema.

0. Definitely not a part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

Please do not omit items.

## PART I POSITION ACTIVITIES

Consider each of the following statements which may describe something that would be done by an individual in your position. If the statement describes something that does not apply to, or is not true for your position because it describes something that is delegated by you to a subordinate, it is not a part of your position. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

0. Definitely not a part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

AN INDIVIDUAL IN THIS POSITION WOULD:

_____ 1. Plan the analysis of quantitative data.

_____ 2. Forecast the volume of work to be done in the near future.

_____ 3. Maintain personal contact with heads of union groups.

_____ 4. Schedule work so that it flows evenly and steadily.

_____ 5. Nominate key personnel in the organization for promotion.

_____ 6. Make assignments of jobs to subordinates.

_____ 7. Submit regular reports concerning accomplishment of groups of personnel.

_____ 8. Visit each of the organization's major units at least once a year.

_____ 9. Write or dictate at least 25 letters per week.

_____ 10. Verify important facts before they become part of a record.

_____ 11. Edit drafts of special reports.

_____ 12. Make speeches at public gatherings.

_____ 13. Sign documents that obligate the organization to the extent of at least $1,000.

DIRECTIONS SUMMARIZED

0. Definitely not a part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

_____ 14. Travel at least 30 days each year as a representative of the organization.

_____ 15. On the average spend at least one hour per day completing routine paper work.

_____ 16. Approve transfers of personnel from one job to another.

_____ 17. Keep detailed and accurate records.

_____ 18. Make recommendations on matters at least as important as the construction of a new plant, or warehouse.

_____ 19. Advise junior persons on technical matters related to the operation.

_____ 20. Make analyses of statistical reports.

_____ 21. Approve the introduction of new products or services.

_____ 22. Have a public speaking engagement at least as often as once every six months.

_____ 23. Be involved in establishing objectives for the organization.

_____ 24. Approve labor contracts.

_____ 25. Justify capital expenditures.

_____ 26. Make suggestions for improvements in organization products and/or services.

_____ 27. Appraise the results of operations.

_____ 28. Anticipate new and/or changed demands for products and/or services.

_____ 29. Serve on a committee concerned with appraisal of performance.

_____ 30. Compute the costs of producing products and/or rendering services.

_____ 31. Set profit (efficiency) objectives for operating groups.

_____ 32. Bargain with union representatives.

_____ 33. Review reports on inventory.

_____ 34. Analyze expense items involving a gross of at least $5,000.

_____ 35. Furnish guidance to others in the preparation of budgets.

_____ 36. Assist project representatives on large projects.

_____ 37. Analyze regularly the effectiveness of operations.

_____ 38. Review budgets for operations.

_____ 39. Establish effective expense controls.

_____ 40. Supervise a team of specialists.

_____ 41. Represent the CO outside the organization.

_____ 42. Analyze operating performance reports.

_____ 43. Devise procedures to properly reflect the results of operation.

_____ 44. Trouble-shoot special problems as they arise.

_____ 45. Plan the best use of available facilities.

_____ 46. Explain divergence between budget and actual expenditures.

_____ 47. Make use of staff people.

_____ 48. Consolidate estimates from various sources.

_____ 49. Evaluate records of production.

_____ 50. Secure facts and information for others.

_____ 51. Serve as a member of one or more committees concerned with organization policy.

_____ 52. Set goals for future performance.

_____ 53. Serve as a consultant in work with branches of the organization.

_____ 54. Brief others on the contents of reports, letters, etc.

_____ 55. Appraise the results of operations.

_____ 56. Define areas of responsibility for supervisory personnel.

_____ 57. Make recommendations for salary increases.

_____ 58. Serve as a consultant in the interpretation of data and/or other information.

_____ 59. Keep a constant check upon the activities of subordinates.

## PART II POSITION RESPONSIBILITIES

Consider each of the following statements which may describe something with which an individual in your position must be concerned. If your position requires that you be attentive to, worry about, be responsible for, or oversee the matter described in the statement, you are to consider it a part of your position, regardless of how much time you devote to it personally. However, if the statement describes something which is strictly the concern of a superior or of a subordinate you should not consider it a part of your position. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

0. Definitely not a part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

AN INDIVIDUAL IN MY POSITION MUST BE CONCERNED WITH:

_____ 60. Long-range objectives of the organization.

_____ 61. Preparation of an annual budget of at least $200,000.

_____ 62. Optimum return on investments of the organization.

_____ 63. Preservation of capital assets.

_____ 64. Capital expenditures.

_____ 65. Payment of salary and/or wages.

_____ 66. Expenditure of sums exceeding $10,000 in routine operations.

_____ 67. Selection of new personnel.

_____ 68. Labor contracts.

_____ 69. Definition of areas of responsibility of supervisory personnel.

_____ 70. Payment of organizational obligations.

_____ 71. Forecasting future trends or events.

_____ 72. Preparation and circulation of bulletins and reports.

_____ 73. Development of new business.

_____ 74. Enforcement of rules and regulations.

_____ 75. Control of inventories.

_____ 76. Improvements in product design.

_____ 77. Protection of organization property.

_____ 78. Employee benefit plans.

_____ 79. Preparation of standards and/or specifications.

_____ 80. Reduction of costs.

_____ 81. Pricing organization products and/or services.

_____ 82. Promotion of the organization products or services.

_____ 83. Proper handling of other than personal monies.

_____ 84. Compliance of practices with state and federal laws.

_____ 85. Relationships with unions.

_____ 86. Insurance programs and/or policies.

_____ 87. Delivery schedules.

_____ 88. Coordination of certain activities of many subdivisions of the organization.

_____ 89. Loss of the organization's money and/or property.

_____ 90. Acceptance of the organization in the community.

_____ 91. Price trends.

_____ 92. Promises of delivery that are difficult to meet.

_____ 93. Product specifications.

_____ 94. Sales quotas.

_____ 95. Merchandising policies.

DIRECTIONS SUMMARIZED

0. Definitely not part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

_____ 96. Market trends five to ten years in the future (demands for the future from the Navy and others).

_____ 97. Long-range solvency of the organization.

_____ 98. Employee attitude surveys.

_____ 99. Employee vacation and benefit plans.

_____ 100. Interpretation of details of a collective bargaining agreement.

_____ 101. What business activities the organization is to be engaged in.

_____ 102. Long-range trends in management thinking.

_____ 103. Control of product quality.

_____ 104. Industrial relations.

_____ 105. Opportunities to promote the organization before the public.

_____ 106. New competitive products.

_____ 107. Union activities within the organization.

_____ 108. Over-or-under staffing of jobs.

_____ 109. Maintenance of proper inventories.

_____ 110. New markets for the organization's products (goods or services).

_____ 111. Engineering standards.

_____ 112. Details of a collective bargaining agreement.

_____ 113. The long-range potentialities of the organization.

_____114. The effectiveness of a force of 100 or more personnel.

_____115. Proposed legislation that might affect the organization.

_____116. Pilot projects.

_____117. Sizing up people.

_____118. Evaluating new ideas.

_____119. Responsibility for items having a value of at least $100,000.

_____120. Redesign of products to reduce costs.

_____121. Quality control.

_____122. Good will of the organization in the community.

_____123. New markets for future products (goods or services).

_____124. Market conditions affecting the users of the organization's products and/or services.

_____125. Efficiency of operations.

_____126. Preparation of quarterly (or more frequent) reports on operations.

_____127. Development of management trainees.

_____128. Human relations practices.

_____129. Consolidation of data and/or information from numerous sources.

## PART III POSITION DEMANDS AND RESTRICTIONS

Consider each of the following statements which may describe a restriction, limitation, control or demand upon an individual in your position. Consider that the statement describes a part of your position if it is true when applied to your position and it is likely that failure to observe the matter described would cause others to think you inadequate or unqualified for your position. Do not consider that a statement describes part of your position if it is not true or does not apply or because it agrees with your personal view about what is proper. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

0. Definitely not part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

MY POSITION REQUIRES THAT I:

_____130. Refrain from activities that might imply sympathy for unions.

_____131. Be active in community affairs.

_____132. Avoid identification with political elements that others consider radical.

_____133. Even during most relaxed social occasions avoid deviations from generally accepted behavior.

_____134. Maintain membership in one or more clubs.

_____135. Keep informed about the latest technical developments in a professional area.

_____136. Avoid any public comment critical of good customer/supplier/contractor.

_____137. Avoid the use of any kind of profanity.

_____138. Be very careful to avoid inadvertent disclosure of confidential information.

_____139. Spend as much as 50 hours per week on the job.

_____140. Take a leading part in local community projects.

_____141. Work with persons whose interests conflict with the demands of my position.

_____142. Sit at a desk at least 20 hours per week.

_____143. Be capable of performing the jobs of all subordinates.

_____144. Participate in outside activities to increase the prestige of the organization.

_____145. Gain the respect of very important persons.

_____146. Work with information of questionable reliability.

_____147. Maintain membership in two or more business organizations.

_____148. Present the organization to the public in its best light.

_____149. Avoid publicity associated with personal difficulties.

_____150. Refrain from being seen at a place (bar, club, etc.) having other than the highest repute.

_____151. Maintain active membership in two or more professional organizations.

_____152. Get to know each person under me.

_____153. Be an active member of at least one civic organization.

_____154. Refrain from public criticism of the organization's operations.

_____155. Make decisions without consulting others.

## PART IV POSITION CHARACTERISTICS (Miscellaneous)

Consider each of the following statements which may be either true or false if applied to your position. If the statement is true only because of your particular relationship to your position and would not be true of another incumbent, do not consider it a part of the position. However, if the statement would be true regardless of who holds the position, then the statement describes a part of the position. In this case your task is to decide how substantial a part of the job it is. Enter a number between 0 and 7 in the blank before each statement according to the following schema.

0. Definitely not part of the position, does not apply, or is not true.

1. Under unusual circumstances may be a minor part of the position.
2.
3.
4. A substantial part of the position.
5.
6.
7. A most significant part of the position.

MY POSITION:

_____156. Signifies membership in top or middle management.

_____157. Offers an opportunity to utilize professional training.

_____158. Involves dealing with persons within the organization of substantially higher rank.

_____159. Involves first-hand contact with customers of the organization.

_____160. Assures that the incumbent will be noticed by top management.

_____161. Is within the normal path of promotion to higher levels.

_____162. Offers an opportunity to work with the more influential people within the surrounding civilian community.

_____163. Allows great freedom of action.

_____164. Involves very frequent contact with the public.

_____165. Involves maintaining the highest respect of a few important persons.

_____166. Involves first-hand contact with machines and their operations.

_____167. Offers an opportunity to gain experience in management.

_____168. Involves the "good will" of the organization.

_____169. Involves meeting problems produced by factors over which I have no control.

_____170. Allows me to make decisions that are not subject to review.

_____171. Provides an opportunity for actually managing an important part of the organization.

_____172. Provides an organization's automobile for my use.

_____173. Entitles me to my own secretary.

_____174. Involves close association with women personnel.

_____175. Involves many regularly assigned duties.

_____176. Carries a personal expense allowance.

_____177. Directly affects the quality of the organization's products or services.

_____178. Involves spending at least 10 hours per week in direct association with superiors.

_____179. Involves very few routine activities.

_____180. Involves activities that are not closely supervised or controlled.

_____181. Provides an office that is located in one of the more desirable areas.

_____182. Is considered a staff rather than line position.

_____183. Involves working under constant pressure to meet deadlines.

_____184. Involves working with members of other armed services or the DOD.

_____185. Involves dealing with other Navy commands.

_____186. Involves dealing with representatives of the Legislative branch of the government.

_____187. Involves dealing with other than DOD representatives of the Executive branch of the government.

_____188. Involves dealing with representatives of the Judicial branch of the government.

## PART V REQUEST FOR ADDITIONAL RELEVANT DATA

If you feel there are other position activities, responsibilities, demands and restrictions, or characteristics that should be included in this questionnaire in order to allow you to better describe your position, please write them below and/or on the back of this page. We will incorporate them into a supplemental questionnaire form and get that back to you in the near future.

One last request, please scan back over your work to make sure you entered a number in every one of the spaces provided for that purpose.

Thank you!

## APPENDIX 2

JOB TITLE-POSITION LISTINGS
FOR SUPPLY & FINANCE POSITIONS
IN SAN DIEGO & WASHINGTON, D.C.

APPENDIX 2

SUPPLY POSITIONS: SAN DIEGO

| Position Identification Number | Position Title |
|---|---|
| 001 | Supervisory Supply Technician |
| 002 | Computer Programmer |
| 003 | Inventory Management Specialist |
| 004 | Budget Analyst |
| 005 | Computer Specialist |
| 006 | Budget Analyst |
| 007 | Management Analyst |
| 008 | Supervisory General Supply Specialist |
| 009 | Marine Cargo Specialist |
| 010 | Supervisory Computer Specialist |
| 011 | Management Analyst |
| 012 | Supply Systems Analyst |
| 013 | Summer Aid (Accountant) |
| 014 | Contract Administrator |
| 015 | Procurement Assistant |
| 016 | Inventory Management Specialist |
| 017 | Inventory Management Specialist |
| 018 | Inventory Management Specialist |
| 019 | Computer Specialist |
| 020 | Supervisory Equipment Specialist, General |
| 021 | Equipment Specialist, General |
| 022 | Computer Specialist |
| 023 | Equipment Specialist, General |
| 024 | Supervisory Property Disposal Specialist |
| 025 | Inventory Management Specialist |
| 026 | Personnel Officer |
| 027 | Inventory Management Specialist |
| 028 | Accounting Officer |
| 029 | Computer Systems Analyst |
| 030 | Property Disposal Assistant |
| 031 | Equipment Specialist, Marine |
| 032 | Equipment Specialist, General |
| 033 | Equipment Specialist, Ordnance |
| 034 | Equipment Specialist, Machine |
| 035 | Equipment Specialist, Electrical |
| 036 | Equipment Specialist, Marine |
| 037 | Property Disposal Assistant |
| 038 | Head Supervisory Equipment Specialist, General |
| 039 | Management Analyst |
| 040 | Computer Specialist |
| 041 | Equipment Specialist, General |
| 042 | Director, Position Classification Specialist |
| 043 | Director, Supervisory Chemist Analyst |
| 044 | Inventory Management Specialist |

SUPPLY POSITIONS: SAN DIEGO (Cont.)

| Position Identification Number | Position Title |
|---|---|
| 045 | General Supply Officer |
| 046 | Head Supervisory Contract Administrator |
| 047 | Equipment Specialist, General |
| 048 | Equipment Specialist, General |
| 049 | Equipment Specialist, Ordnance |
| 050 | Equipment Specialist, General |
| 051 | Equipment Specialist, Mechanical |
| 052 | Procurement Assistant |
| 053 | Procurement Assistant |
| 054 | Procurement Assistant |
| 055 | Equipment Specialist, Auto |
| 056 | Budget Analyst |
| 057 | Budget Analyst |
| 058 | Supervisory Inventory Management Specialist |
| 059 | Storage Management Specialist |
| 060 | Property Disposal Assistant |
| 061 | Property Disposal Assistant |
| 062 | Property Disposal Assistant |
| 063 | Property Disposal Assistant |
| 064 | Supervisory Property Disposal Specialist |
| 065 | Program Analyst |
| 066 | Property Disposal Officer |
| 067 | Inventory Management Specialist |
| 068 | Inventory Management Specialist |
| 069 | Financial Manager |
| 070 | Personnel Staffing Specialist |
| 071 | Supervisory Equipment Specialist, General |
| 072 | Supervisory Personnel Staffing Specialist |
| 073 | Supply Systems Analyst |
| 074 | Director, Employee Development Specialist |
| 075 | Computer Systems Analyst |
| 076 | Computer Specialist |
| 077 | Personnel Staffing Specialist |
| 078 | Head Supervisory Computer Specialist |
| 079 | Supply Management Assistant |
| 080 | Computer Specialist |
| 081 | Computer Specialist |
| 082 | Property Disposal Assistant |
| 083 | Computer Specialist |
| 084 | Head Supervisory Procurement Agent |
| 085 | Equipment Specialist, Electrical |
| 086 | Equipment Specialist, General |
| 087 | Supervisory Labor Management Relations Specialist |
| 088 | Procurement Assistant |
| 089 | Supply Management Assistant |

## SUPPLY POSITIONS: NAVSUP

| Position Identification Number | Position Title |
|---|---|
| 150 | Technical Advisor to the Commander |
| 151 | Educational Specialist |
| 152 | Resale Program Specialist |
| 153 | Editor |
| 154 | Supply Management Specialist |
| 155 | Department Director |
| 156 | Supply Management Director |
| 157 | Program Manager |
| 158 | Branch Head |
| 159 | Activity Representative |
| 160 | Assistant Deputy Commander, Procurement Management Branch |
| 161 | Director, Procurement Policy & Planning Division |
| 162 | Procurement Analyst |
| 163 | Program Analyst Officer |
| 164 | Program Analyst |
| 165 | Deputy Commander, Administration Management Analyst Officer |
| 166 | Management Analyst |
| 167 | Transportation Officer |
| 168 | Head, Storage & Packaging Branch |
| 169 | Supply Systems Analyst |
| 170 | Storage Management Specialist |
| 171 | Traffic Management Specialist |
| 172 | Transportation Analyst |
| 173 | Provisioning Branch Head |
| 174 | General Supply Officer |
| 175 | Head, Budget Form. Branch |
| 176 | Head, Mutual Security Program Branch |
| 177 | Fiscal Accounting Assistant |
| 178 | Planning & Policy Branch, Acting Director |
| 179 | Asst. Dir., Program Appraisal & Mgmt. Info. Systems Division |
| 180 | Head, Systems Design & Analysis |
| 181 | Computer Systems Analyst |
| 182 | Program Analyst |
| 183 | Planning Officer |
| 184 | Logistics Planning Analyst |
| 185 | Navy Publications & Printing Services, Deputy Director |
| 186 | Printing Officer |
| 187 | Systems Analyst |
| 188 | Supply Management Specialist |
| 189 | Supply Management Analyst |
| 190 | Supply Management Specialist |
| 191 | Assistant Head, Stock Point Systems Branch |
| 192 | Supply Management Specialist |
| 193 | Computer Equipment Analyst |
| 194 | Supply Management Specialist |
| 204 | Material Technical Programs Division, Director |
| 205 | Director, Program Analysis |
| 206 | Program Analyst |

FINANCE POSITIONS: SAN DIEGO

| No. | ID# | Job Title |
|---|---|---|
| 01 | 090 | Voucher Examiner, Supervisory Typing |
| 02 | 091 | Voucher Examiner Supervisor |
| 03 | 092 | Office Services Supervisor |
| 04 | 093 | Fiscal Accounting Supervisor |
| 05 | 094 | Computer Specialist |
| 06 | 095 | Supervisory Computer Aid |
| 07 | 096 | Computer Specialist |
| 08 | 097 | Supervisory Mail/File Clerk |
| 09 | 098 | Voucher Examiner Supervisor |
| 10 | 099 | Disbursing Specialist |
| 11 | 100 | Disbursing Specialist |
| 12 | 101 | Computer Specialist |
| 13 | 102 | Computer Programmer |
| 14 | 103 | Computer Programmer |
| 15 | 104 | Supervisory Disbursing Specialist |
| 16 | 105 | Management Analyst |
| 17 | 106 | Computer Specialist |
| 18 | 107 | Voucher Examiner Supervisor |
| 19 | 108 | Supervisory Accounts Maintenance Clerk |
| 20 | 109 | Disbursing Specialist |
| 21 | 110 | Disbursing Specialist |
| 22 | 111 | Digital Computer Systems Administrator |
| 23 | 112 | Disbursing Specialist |
| 24 | 113 | Disbursing Specialist |
| 25 | 114 | Accounting Technician |
| 26 | 115 | Supervisory Accounting Technician |
| 27 | 116 | Supervisory Accountant |
| 28 | 117 | Supervisory Accounts Maintenance Clerk |
| 29 | 118 | Supervisory Accounting Technician |
| 30 | 119 | Management Analyst |
| 31 | 120 | Supervisory Accounts Maintenance Clerk |
| 32 | 121 | Supervisory Fiscal Accounting Officer |
| 33 | 122 | Military Pay Supervisor |
| 34 | 123 | Fiscal Accounting Assistant |
| 35 | 124 | Military Pay Supervisor |
| 36 | 125 | Supervisory Military Pay Clerk |
| 37 | 126 | Military Pay Supervisor |
| 38 | 127 | Supervisory Fiscal Accounting Officer |
| 39 | 128 | Computer Specialist |
| 40 | 129 | Voucher Examiner Supervisor |
| 41 | 130 | Voucher Examiner Supervisor |
| 42 | 131 | Supervisory Fiscal Accounting Assistant |
| 43 | 132 | Card Punch Supervisor |
| 44 | 133 | Card Punch Supervisor |
| 45 | 134 | Computer Specialist |
| 46 | 135 | Computer Specialist |
| 47 | 136 | Disbursing Specialist |
| 48 | 137 | Disbursing Specialist |
| 49 | 138 | Disbursing Specialist |

FINANCE POSITIONS: NAVCOMPT

| No. | ID# | Job Title |
|---|---|---|
| 50 | 501 | Program Manager |
| 51 | 502 | Management Analyst |
| 52 | 503 | Program Analyst |
| 53 | 504 | Management Analyst |
| 54 | 505 | Budget Officer |
| 55 | 506 | Program Manager |
| 56 | 507 | Branch Head, Nonappropriated Funds & Special Systems |
| 57 | 508 | Systems Accountant |
| 58 | 509 | Systems Accountant |
| 59 | 510 | Systems Accountant |
| 60 | 511 | Director, Functional Systems Division |
| 61 | 512 | Supervisory Systems Accountant |
| 62 | 513 | Program Analyst |
| 63 | 514 | Systems Accountant |
| 64 | 515 | Systems Accountant |
| 65 | 516 | Fiscal Accountant Assistant |
| 66 | 517 | Fiscal Accountant |
| 67 | 518 | Military Pay Regulations Specialist |
| 68 | 519 | ?? |
| 69 | 520 | Military Pay Regulations Specialist |
| 70 | 521 | Military Pay Regulations Specialist |
| 71 | 522 | Military Pay Regulations Specialist |
| 72 | 523 | Military Pay Regulations Specialist |
| 73 | 524 | Military Pay Regulations Specialist |
| 74 | 525 | Computer Specialist |
| 75 | 526 | Computer Specialist |
| 76 | 527 | Computer Operations Supervisor |
| 77 | 528 | Director, ADP Operations Division<br>Digital Computer Systems Administrator |
| 78 | 529 | Computer Specialist |
| 79 | 530 | ?? |
| 80 | 531 | Computer Specialist |
| 81 | 532 | Computer Specialist |
| 82 | 533 | Computer Specialist |
| 83 | 534 | Computer Specialist |
| 84 | 535 | Deputy Director, Financial Analysis Division |
| 85 | 536 | Systems Accountant |
| 86 | 537 | Program Analyst |
| 87 | 538 | Operations Research Analyst |
| 88 | 539 | Program Analyst |
| 89 | 540 | Program Analyst |
| 90 | 541 | Act. Hd. Secretariat Accounts Branch |
| 91 | 542 | Supervisory Accounting Assistant |
| 92 | 543 | Director, Administrative Services Division |
| 93 | 544 | Program Analyst |
| 94 | 545 | Director Program/Budget Systems Operations |
| 95 | 546 | Data Control Branch Head |
| 96 | 547 | Program Analyst |
| 97 | 548 | Program Analyst |

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